Saturday Review

JANUARY 3, 1959 / 25¢

SR/RESEARCH
SCIENCE & HUMANITY

DOCTORS AND ANTIBIOTICS

Taking the Miracle Out of Miracle Drugs

By John Lear

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Arthur Schlesinger, Jr. author of "The Coming of the New Deal." ►

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HE ROAD TO BERLIN

An Editorial

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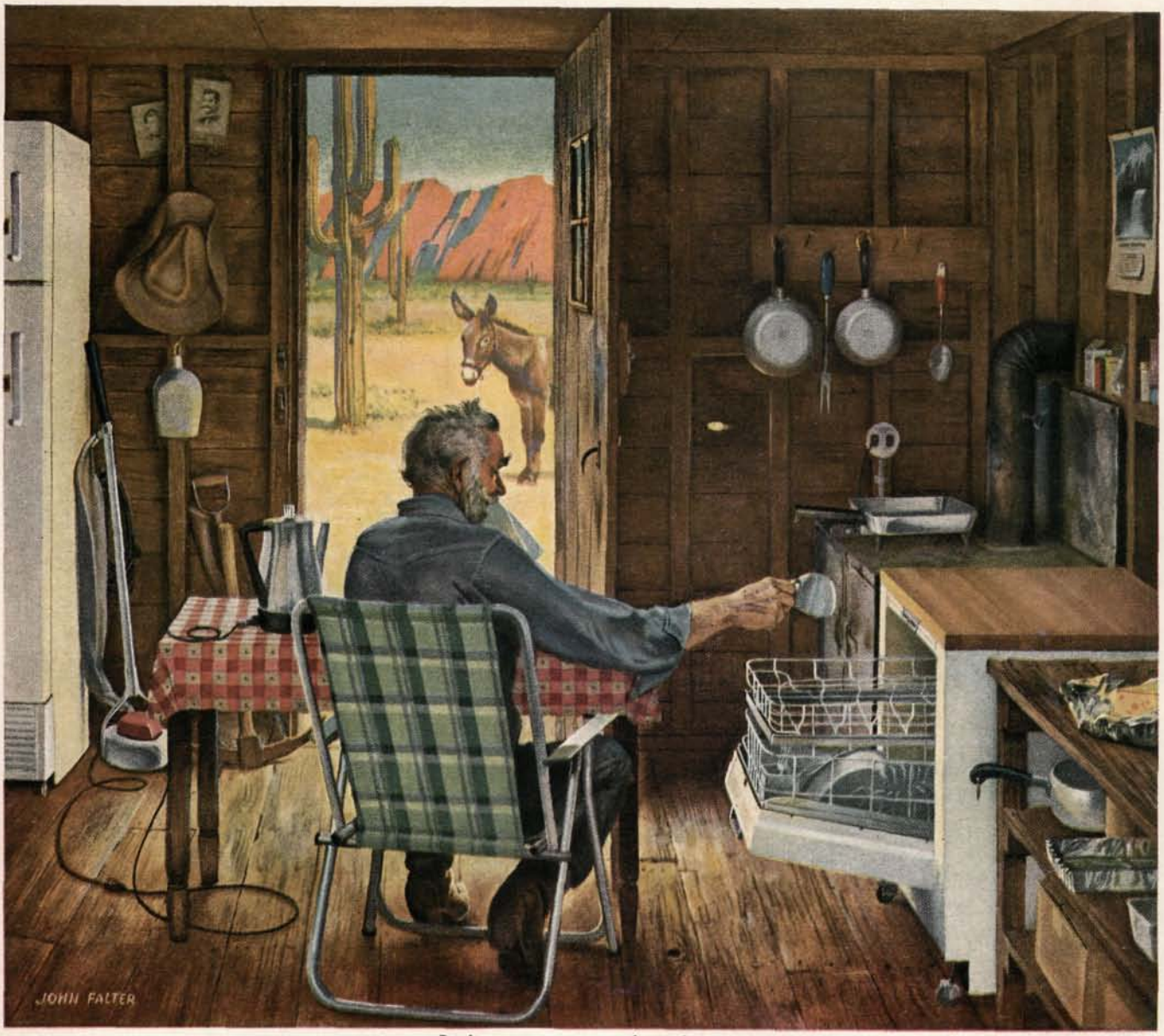

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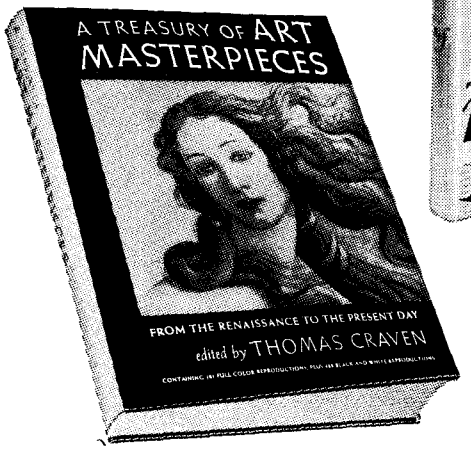

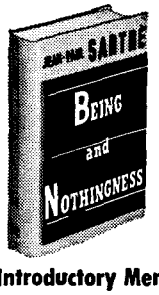

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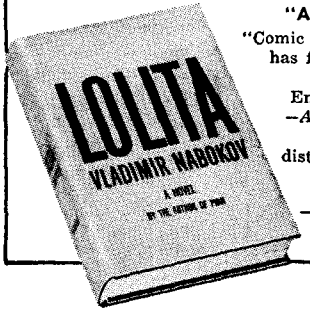

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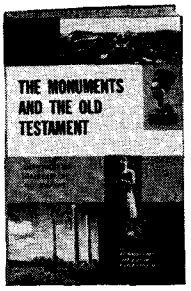

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FIRST OF THE MONTH

By Cleveland Amory

ALL in all, 1958 was a bad year for Earth, the Republicans, Sherman Adams, Claudius Chas. Philippe, the South, professional baseball, quiz shows, government bonds, the railroads, the new fashions, Maria Callas, and big automobiles. It was a good year for Space, the Democrats, DeGaulle, Nelson Rockefeller, the North, professional football, Westerns, credit cards, the jets, hula hoops, Brigitte Bardot, and little automobiles. It was a bad year for theatre but a good year for theatre critics (particularly a new *New Yorker* one who doesn't even like Rodgers and Hammerstein). It was a bad year for charity but a great year for charity balls—of which the one that took, as Marie Antoinette would have said, the cake was the one put on by the wife of our present Ambassador to Cuba, at which 474 people paid $40 a plate, and as a result of which one Cuban designer is now going to study some design in New York.

Above all, it was a bad year for bears and a bearcat of a year for bulls—particularly the bulls with drug stocks, insurance stocks, "growths" like IBM and A&P and AT&T as well as "specialties" like Zenith, Polaroid, Thiokol, Ampex, Aerojet, and American Motors. But the 1958 growth granddaddy of them all was a special little specialty called the Itek Corporation. The mystery stock of the year, an "over the counter" outfit founded by the Rockefeller brothers and engaged in reputedly the highest classified research since the Manhattan Project, the stock came out, a year ago, at 2. As we went to press it was exactly 162.

• • The big news of the end of the year was, of course, the newspaper strike. For a while we thought there wasn't any news either, but that wasn't true. There was *news* all right, there just weren't any *papers*. There were no papers for papers—for stuffing things and wrapping things and all sorts of things. There weren't any papers for shelves, for garbage cans, or, worst of all, for paper-trained dogs. But no news was good news, too. For one thing, during the strike, not only did New York wives actually see their husbands at breakfast for the first time, but also commuters, in trains and subways and buses, saw each other. It was quite a shock. Apparently there were a number of people who had been close friends for years and didn't even know they had been going together, so to speak.

For our own part, all during the strike we never forgot the last headline we saw before the blackout began. It was a two-liner, and it said:

GOLDFINE INDICTED ON 17 COUNTS; ADAMS SELLS MEMOIRS FOR $100,000

As if that weren't enough, that same night, in another paper, we had begun reading the first of a three-instalment series which was headlined, RITA HAYWORTH FINDS HAPPINESS IN THE SIMPLE LIFE. It was all about the fact that Rita, now Mrs. Jim Hill, for Pete's sake, had turned forty and had five beagles and things, and was very happy. We got all the way through, too, to the very last paragraph which said, in Rita's very own words, "I don't know what the future will bring." The next night, of course, there was no future—not even the second instalment of a future.

The only New York newspapers to keep publishing during the strike were the *Wall Street Journal* and the *Hobo News*. New Yorkers were reduced to gossip sheets put out by "21" and the Stork Club, mimeographed news sheets put out by the New York Central and Schrafft's, nearby papers like the *Paterson* (N.J.) *Call* and the *Philadelphia Bulletin* (which in New York nearly nobody had ever read before) and also a strange thing called the *National Enquirer*, which advertised itself as "The World's Liveliest Paper" and had as its main headline, or at least did the night we saw it, I WAS HYPNOTIZED OUT OF LOVE. It was all about a "famous fashion model" named Joan North who had fallen in love with a French businessman named Paul but he was Roman Catholic and she was Protestant. Somehow, after our Rita Hayworth experience, we just didn't dare get too involved. We did, however, see a copy of the *Harvard Crimson*, and, as former president, we took some pride in the fact that it rushed 10,000 copies up from Cambridge in time for the city's first newspaperless weekend.

We also thought the *Crimson's* distribution was noteworthy: fifty to the Harvard Club, 100 to the Yale Club, and 9,850 elsewhere.

• • Down at the *Times*, there was news as usual. This was the only paper which kept on all of its editorial staff, wrote all the copy and headlines, and indeed went through all the motions of putting out a paper except putting it out. Just why they were doing this no one seemed to know, but the *Times* has published every single day since it started in 1851 (with the exception of one eleven-day break in 1947, papers published but no delivery, and one ten-day break in 1953, no publishing or delivery but back copies printed later), and habit is a hard thing to break. Also, of course, the *Times* can afford it. On the other hand, the *Herald Tribune* was particularly hard hit, and, it seems, made its deal with Ambassador Jock Whitney just in time—for it, if not for Jock.

• • Back at home we turned on the radio and discovered that a relatively small number of truck drivers wanted $110 a week instead of $103, a thirty-five-hour work week instead of thirty-seven-and-a-half, and fifty-pound bundles to carry instead of fifty-three. (As we went to press the cost of the strike had been approximately $15,000,000.) We also heard, that first night, another item of news: Jimmy Hoffa, the radio said, was now going to organize the New York policemen. Well, sir, we lived through the Boston Police Strike in 1919—we were two years old—and that was enough of that. We turned off the radio.

The next morning, though, it was Sunday, and we turned on the television. Here we didn't hear any more about Hoffa, but we heard an NBC man reading the funny papers. He was a pretty comical looking fellow too—no Fiorello LaGuardia, but funny enough, particularly when he had finished the funnies and, looking right at us, said, "Kiddies, do you know what today is?" We didn't because we had no newspapers, but we nodded anyway. "It's the anniversary of the Bill of Rights," he said. Then, before we could do anything, he went on and asked, "And do you know what the Bill of Rights is?" We thought we did, but obviously nothing could stop him now. "Well, kiddies, you know what a club is, don't you?" And then, honest Injun, as we got up to turn him off, he said, "Well, kiddies, America is sort of a club, and the Bill of Rights is sort of a list of rules."

A little later we got desperate and decided to go out and see the newsreel at the corner (Loew's 72nd). It was in between two movies—"The Blob" and "I Married a Monster from Outer Space." Somehow we missed that too.

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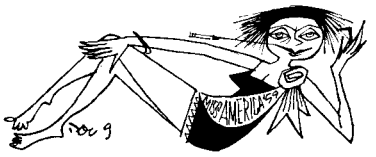
TRADE Winds

PREDICTIONS FOR the New Year: in 1959 someone will come to the defense of bus drivers, probably in the form of a letter to the newspaper signed "Bus Driver's Wife." The anti-bus driver correspondence reaches such proportions that every once in a while some reporter is asked by the editor to pen one of these replies. "Have you ever tried to drive with one hand, make change with the other, and answer dumb questions from passengers all at the same time?" it will cry. "Why should 99 per cent of the suffering city bus drivers pay for the meanness of 1 per cent?" There will probably be some reference to the poor pay, too.

Some publication will publish a story about how in a certain community some teenagers have formed a club whereby they use their hot rods to go around and help motorists in trouble. A photograph will show a couple of the members changing the tire on a woman's automobile. Another illustration will show the club members holding court where one of their own kind is on trial for a traffic infraction. The sentence: write a 1,000-word essay on obeying the law.

An advertising man will make a speech in which he expresses astonishment and indignation at the manner in which Madison Avenue is depicted in all the novels which have been written recently about that business. He will declare that no one in his office wears gray flannel or drinks martinis. He will describe the adman as an ordinary fellow who puts the cat out at night just as you and I. He will take a swipe at Vance Packard.

Some official visitors from the Soviet Union will arrive in this country for a tour, and the group will be taken

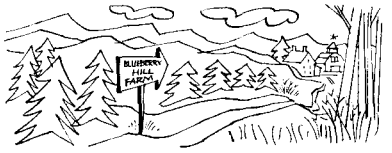


to Times Square to see what America is really like.

Three final fast predictions: a big picture magazine will cover a slumber party; a plain girl will win the Miss America contest; Pearl Buck will have another book published.

Have I left anything out?

THIS IS THE TIME for resolutions, too, and it might be encouraging to know that many people have made them and kept them. There are little resolutions, like giving up something, and then there are big ones, like changing one's way of life. I'm thinking now of Elsie and John Masterton. Ten years ago she was a doctor's assistant in New York and he a highly successful lawyer in New Jersey. It was then that



they married, bought a thousand acres in the loveliest part of Vermont, and started Blueberry Hill Farm.

I needn't go into detail about the joys and heartaches these two experienced in trying to learn how to run a ski resort, an inn, a mail order business, a family. Much of it is told in the book they wrote about it called "Nothing Whatever to Do" (Crown), which has sold almost 10,000 copies in the two years since it came out. Perhaps the title of the book will sound familiar to you, and it should, for it is the key phrase in the brief classified advertisement which has appeared in this magazine every week for ten years. The Mastertons have advertised in no other publication, and as a result of this short message (look it up yourself) have received some 15,000 letters over the years, from folks who come to Blueberry Hill Farm to do nothing, or who don't come but who read the friendly newsletters that go out, or who buy the interesting cucumber, blueberry and cranberry products which the Mastertons make.

Elsie, who could barely scramble eggs when she married John, has become a fine cook, and when she ended "Nothing Whatever to Do" with some recipes and the words, "Maybe some day I'll write a cookbook," she made a promise that her readers have forced her to keep. In the Spring Thomas Y. Crowell will publish the Blueberry Hill Cook Book. That will help to explain the "Lucullan food" part of the recurrent ad in our classified section.

And "nothing whatever to do" applies only to the guests at Blueberry Hill Farm. The Mastertons have plenty to do.

THIS IS THE third season for the project known as Florida Roundtable. The director of this program, Gretta Baker, tells me that she sees one third of a nation over forty years of age, and that the Roundtable has been devised to keep active and alert the minds of these old-timers. A New York writer who watched her father retire to Florida and become bored with too much leisure, Gretta Baker reports that members of the Florida Roundtable can learn ballroom dancing, how to read good books, or anything in between.

"There are afternoon sessions five days a week for five weeks at a Daytona Beach hotel, the Princess Issena, where members get a break in rates," Miss Baker informs TRADE WINDS. "Sessions begin January 12 and cover such fields as creative writing, psychology, book reviews, and personality development."

Miss Baker reminds me that Ponce de Leon was fifty-three years old when he first went to Florida, seeking eternal youth. Failing, he returned to Spain. He was placed in a dungeon, where he languished. Later, he was entombed in the Plaza de Toros. The moral is, if he had remained in Daytona Beach, he would be seated at a round table instead of resting in a square.

CHARLEY SMITH, an artist, recently designed and had made several dozen fancy containers for Film Designers, Inc. When they were delivered, it appeared that the contents, for which the containers had been made, wouldn't fit in them. In some alarm, a Film Designer executive telephoned.

"Say, Charley," he said, "your boxes don't fit!"

Whereupon Charley asked him how he knew that.

"Why," sputtered the executive, "I tried to put the stuff in one of them and the box was too small."

"Well," Charley replied, "try every one of them. I'm not so accurate that they could *all* be wrong."

—JEROME BEATTY, JR.

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TO A YOUNG WRETCH

And though in tinsel chain and popcorn rope,
My tree a captive in your window bay
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And lost the stars of heaven, may, oh may
The symbol star it lifts against your ceiling
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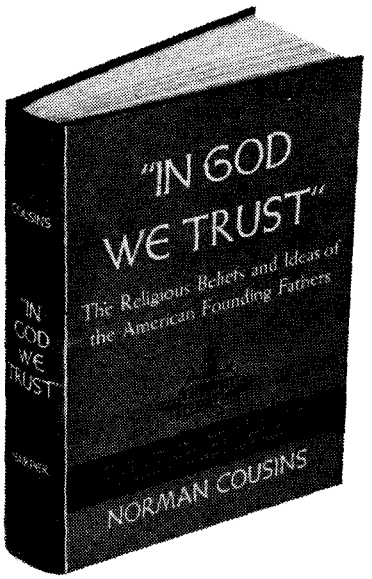

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Saturday Review
JANUARY 3, 1959

A SCIENTIST PONDERS FAITH

By WARREN WEAVER, *vice-president for the natural and medical sciences, Rockefeller Foundation.*

I BELIEVE that faith plays an essential role in science just as it clearly does in religion. I further believe that there are elements of perfection in religion that do not have counterparts in science. It is the purpose to develop here these two statements of belief—the first rather briefly, since many scientists agree on this point, and the second in somewhat more detail, since scientists tend to be shocked at a claim that religion is in any sense superior to science.

What do I mean by "faith"? The dictionary says, "the act or state of accepting unquestioningly the existence, power, etc., of a supreme being and the reality of a divine order."

I do not understand the inclusion here of the word "unquestioningly," for *acceptance* seems to me a process necessarily preceded by questioning. But, in any event, I use the word faith to refer to beliefs held so deeply, so completely, and so without reservation that one is prepared to base his life on these beliefs, even though they cannot be justified by so-called rational proof. I do not at all imply that an element of "faith" is to be established by virtue of external authority, and I most certainly do not refer to formal and formally imposed ecclesiastical dogmas. Faith is something I accept, not something which is forced upon me. Faith arises, I believe, in various and almost unanalyzable ways. Partly it arises by virtue of inner mystical experiences to which can probably be fairly applied the word "revelation." In large part, however, it develops and is sustained by actual experience.

Now, in science, is any role played by this kind of faith? The dictionary definition gives the proper beginning of the answer, when it says that faith is a belief in the existence of a divine order. For the great underlying, and essentially unprovable, assumption on which all of science is based is that nature is orderly. A second great dictum of scientific faith is that the order of nature is discoverable by man. A third great element of the scientific faith of Western science, and one which many accept without realizing that they do so, and without realizing that there are alternative possibilities, is the assumption that the whole quantitative time-space-mass-energy set of concepts which have been developed within the Greco-Judaic system is capable of capturing the variety and subtlety of nature. Fourthly, science assumes that logic is to be trusted as a mental tool. I hope that the reader is curious about the idea that anyone needs faith to believe in logic, for I will be saying more about this point.

Fifthly, although scientific thought has never been able to construct any generally acceptable basis for probability theory, and although we realize that science can in general make no quantitative statements about the external world other than probability statements, science proceeds on the calm faith that its statements do nevertheless have meaning and beauty. (Science, of course, has the added comfort that its statements clearly have utility.)

Sixthly, in the last thirty-five years or so it has come to be realized that —speaking of course in terms of detailed and ultimate accuracy—science actually has no capacity to deal directly with the external world. We now know that when we observe any object—an electron, a molecule, a

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flatiron, or a star—the process of observation inescapably affects the thing observed. It will not be misleading to say that what happens is a little like asking questions of an exceedingly delicate and sick person through a crack in the door to his room in the hospital. You call in, "How are you?" He answers, "OK." But if he is very weak indeed the effort of making that answer may result in his death, so that the reply completely and automatically invalidates its own meaning.

When a physicist asks an electron, "Where are you?" the electron replies; but the effort of replying always moves the electron—and unpredictably—into a new location so that the answer is automatically invalidated. With large-scale objects, like the flatiron or the star, the effect is normally very small indeed, and for that reason most of us live out our lives, dealing with ordinary objects, without noticing, or having to notice, this effect. But it is a large effect when one deals with electrons, neutrons, and the other ultimate particles; and remember that every object in our universe is, after all, made up of these particles; so if they elude description, then in a very real ultimate sense, everything does. And this effect can be of great consequence in the case of large-scale objects, as in nuclear events that lead by a chain process to very large-scale explosions. So the shocking fact is that science simply does not have detailed and precise access to what we ordinarily call the external world. Thus here again science is not "dealing with hard facts" as so many suppose, but is rather playing a subtle game with nature, all based on an unproved and unprovable faith that this procedure is meaningful and rewarding.

I THINK it neither necessary nor appropriate that I spend any considerable time speaking of religious faith. But may I merely call your attention to the close parallelism between some of the items of scientific faith I have just mentioned, and items of religious faith. Where the scientist has faith that nature is orderly, the religionist has faith that God is good. Where the scientist believes that the order of nature is discoverable to man, the religionist believes that the moral nature of the universe is discoverable to man—some would wish to say, has been revealed to man. Where the scientist has faith that his Western system of scientific thought is capable of dealing with nature, the religionist has faith that the moral concepts of the great religions—and for us particularly the concepts of Christianity—are capable of dealing with the ethical and moral problems of man. None of these propositions can, in any formal logical sense, be "proved." But in both sets of cases, these are the kinds of belief—the articles of faith—that men are prepared to live by.

Now, to pass to another aspect of this subject, I claim that it can suggestively, and I think convincingly, be argued that religion enjoys a certain superiority over science, in that religion has attained an actual identification with perfection, whereas science has to content itself with a never-ending, and hence never realized, approach to perfection.

I want to say at once that, in stating that religion has had experience with finality and perfection, I do not at all wish to question the reality or the desirability of progress in religious thinking. I do not hold with those fundamentalists who think that the last i was dotted and the last t crossed, centuries ago. The religion of the New Testament is to me a distinctly purer and finer doctrine than the religion of the Old Testament. As science reveals more and more of the complicated and orderly beauty of nature, our religion should become richer and richer. Scholarly study of the history of man's record of religious thought and experience does in fact reveal flaws in our previous understanding, and does result in real change—real progress—in our interpretation of religious ideas.

So far, then, one can say that both science and religion are dynamic activities, both advancing towards deeper and better understanding. But I think that there is nevertheless a real difference in the two situations; and that in the comparison, religion comes out on top.

I will offer three interrelated arguments: first, that scientific thinking always expands out to face an ever larger area of unsolved questions whereas religion closes in, more and more securely, on an inner core of truth; second, that as the external successes of science grow, it becomes more and more clear that there are unavoidable and inescapable inner imperfections in the underlying structure of science; and third, that there is a quality of permanence to religious thought which is not to be found in science.

First, then, which—science or religion—is really gaining in its assault on the totality of the unsolved? As science learns one answer, it is characteristically true that it also learns several new questions. It is as though science were working in a great forest of ignorance, making an ever larger circular clearing within which, not to insist on the pun, things are clear. The cleared circle is ever expanding—there is continuous progress in clearing away further ignorance. But as that circle becomes larger and larger, the circumference of contact with ignorance also gets longer and longer. Science learns more and more. But there is an ultimate sense in which it does not gain; for the volume of the appreciated but not understood keeps getting larger. We keep, in science, getting a more and more sophisticated view of our essential ignorance.

I do not think that a similar or comparable thing happens in advancing religious thought. It is almost as if the progress in religious thought were centripetal, aimed toward decreasing a central core of ignorance, rather than centrifugal, aimed out into the limitless unknown. In religious thought we progress toward known and recognizable goals; whereas in scientific thought we have really no way whatsoever to guess where we are heading.

NEXT, let us look briefly at the logical structure of scientific thought. If there is any aspect of science which is universally considered as basic, and which is usually considered to be unassailable, it is the logical nature of scientific reasoning. The relentless, austere precision of logic is, in fact, often held up to shame those who admittedly proceed, at least in part, through more emotional and intuitive modes of thought. But what is the situation, if one looks far within and says, "I do not in the least question the magnificent practical usefulness of this logical technique, but I am asking whether or not it is, in any ultimate sense and at its core, impregnable."

We remember that there are two great divisions of logic—deductive and inductive. In deductive logic one starts by making a certain number of pure assumptions—technically speaking, he adopts the postulates of the system under examination. Then with the addition of a certain accepted vocabulary of signs, certain assumed formation rules for combining the signs, and certain assumed transformation rules for deriving new formulas from old ones—with this assumed machinery one then proceeds to—to do what?

Of course, all he can possibly do is to unroll, in all its lovely and unsuspected complexity, the truths—or more properly, the formally correct

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relationships—which were inherent in what he originally assumed. This procedure is, of course, quite powerless to create truths—it can only reveal previously and unconsciously assumed truth.

But this is not the limitation of deductive logic which I wish to emphasize. I wish rather to speak of shocking discoveries concerning deductive logic which have been recently made by an amazing genius named Kurt Gödel.

Let me start by quoting from a recent paper by Nagel and Newman on Gödel's work:

> The axiomatic method invented by the Greeks has always been regarded as the strongest foundation for erecting systems of mathematical thinking. . . . Until recent times the only branch of mathematics that was considered by most students to be established on sound axiomatic foundations was geometry. But within the past two centuries powerful and rigorous systems of axioms have been developed for other branches of mathematics. . . . Mathematicians came to hope and believe that the whole realm of mathematical reasoning could be brought into order by way of the axiomatic method.
>
> Gödel's paper put an end to this hope. He confronted mathematicians with proof that the axiomatic method has certain inherent limitations which rule out any possibility that even the ordinary arithmetic of whole numbers can ever be fully systematized by its means. What is more, his proofs brought the astounding and melancholy revelation that it is impossible to establish the logical consistency of any complex deductive system except by assuming principles of reasoning whose own internal consistency is as open to question as that of the system itself.

Indeed, Gödel obtained two results, each of which is of the most massive importance. He proved first of all that it is impossible—theoretically impossible, not just unreasonably difficult—to prove the consistency of any set of postulates which is, so to speak, rich enough in content to be interesting. The question "Is there an inner flaw in this system?" is a question which is simply unanswerable.

Secondly, he proved that any such deductive logical system inevitably has a further great limitation. Such a system is essentially incomplete. Within the system it is always possible to ask questions which are undecidable.

"This remarkable conclusion," and again I am quoting the Nagel-Newman article, "makes evident an inherent limitation in the axiomatic method. Contrary to previous assumptions, the vast 'continent' of arithmetical truth cannot be brought into systematic order by way of specifying once for all a fixed set of axioms from which all true arithmetical statements would be formally derivable."

If deductive logic has serious and built-in limitations, how about inductive logic? This is the branch of reasoning which examines all the observed cases recorded in the evidence, and seeks to induce therefrom general laws. This is the way in which the mind of man attempts to reach universals by the study of particulars.

Over 200 years ago David Hume bluntly denied the propriety of inductive logic. Ever since, certain skeptics have urged the necessity of practicing induction without pretending that it has any rational foundation; certain deductionists have vainly tried to prove Hume wrong; certain philosophers have optimistically hoped that a mild and friendly attitude towards such words as "rational" and "reasonable" could of itself sanction their application to statements referring to future and hence unexamined cases; and certain scientists have felt that it is vaguely sensible to suppose that future phenomena would conform to past regularities.

DEEP and troublesome questions are involved here. Consider, just for a moment, the question: When and why does a single piece of past evidence give useful information about a future situation? If one takes a single piece of copper and determines that it conducts electricity, then it seems sensible to suppose that all other future pieces of copper will also conduct electricity. But if we pick out a man at random and determine that his name is John, this does not at all lend credence to the idea that all other men are named John. The first of these seems to lead to a "lawlike statement," and the second to an "unlawlike" one; but no one, so far as I know, has ever been able to give workable form to this distinction.

In fact, in spite of many attempts to make induction intellectually tolerable, the matter remains a mess. If you think I exaggerate, may I urge you to examine an article by Israel Scheffler in *Science* in which he summarizes recent work of N. Goodman.

He points out that the attitude of scientists toward induction, just referred to, has seemed to some to justify the claim that "in principle, we have our answer to the challenge of induction."

But Dr. Scheffler goes on to say:

> It is this sanguine estimate which has been thoroughly upset by Goodman's researches. . . . Appearing at a time when logicians had been making considerable progress in analyzing other aspects of scientific method, these results came as a shock. Goodman's investigations, it seemed, had sufficed to undermine all the usual formulas concerning the most basic concepts of the logic of science, but his repeated and ingenious efforts to supply a positive alternative had all turned out fruitless. In the philosophic discussions that followed, every attempt was made to skirt Goodman's disheartening results. They were declared unimportant for the practicing scientist. The initial questions were asserted to be insoluble, hence worthless. Many papers, on the other hand, proposed what seemed perfectly obvious solutions that turned out to be question-begging. Only a very few authors fully recognized the seriousness of the situation for the philosophy of science and tried to cope with it directly.

Although the result will be almost incredible to one who has not read the original papers, the reader should face, from a specific example, just how surprising is the weakness of inductive logic as one now sees the matter. Let us look at the simplified case of the way in which one piece of evidence can be used in making inductions; for after all, if we cannot establish some gain from a single piece of evidence, then the prospect is most dubious that we could gain from more evidence.

A given piece of copper is tested, and it is found to conduct electricity. This item of evidence supports the statement: "All specimens of copper conduct electricity," but it also and equally logically supports the statement: "All specimens of copper are either such that they have been previously examined and have been found to conduct electricity, or are such that they have not yet been examined and do not conduct." And by invoking exactly the same logical machinery in the two instances the former statement leads to the conclusion: "A new and untried piece of copper will conduct electricity," whereas the latter, with precisely equal cogency, leads to the conclusion: "A new and untried piece of copper will not conduct electricity." The ability of induction to deal with a future case thus collapses; and since this is the only useful aspect of induction, we are faced by total collapse.

Thus I must report to you that discouraging news has leaked out of the citadel of logic. The external walls appear as formidable as ever; but at the very center of the supposedly

(*Continued on page* 33)

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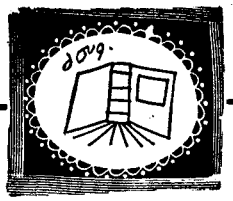

LITERARY HORIZONS

Men of Science

By Granville Hicks

AS Harvey Curtis Webster pointed out not long ago (*SR*, July 12, 1958), C. P. Snow has had a variety of careers. He began as a student of physics, and did well enough to be elected Fellow of Christ's College, Cambridge, at the age of twenty-five. Almost immediately thereafter, in 1932, he published a mystery story, thus initiating his career as a novelist. In 1940 came the first volume of his "Strangers and Brothers" series, and the publication of succeeding volumes has established his reputation in the United States as well as in England. But in the meanwhile he was active as a Civil Service Commissioner, performing his job with such distinction that in 1957 he was knighted. He has also been an adviser on scientific matters to private industry. In a prefatory note in **"The Search"** (Scribners, $3.95) he observes that he has spent a good deal of his working life "sitting with scientists in the afternoon, as it were, and talking to writers at night."

"The Search" was originally published in 1934, and Snow explains why he has revived and revised it. Friends, including eminent scientists, told him that "this book gave something like a true account of what it is like to be a scientist. They also said that at this time of all times, in the late 1950s, it was specially important that nonscientific readers should be given the chance to know what it is like to be a scientist." He continues: "As for the first statement, I hope they are right. As for the second, I am sure they are."

"The Search" is the story of Arthur Miles, who, like Lewis Eliot in the "Strangers and Brothers" series and like Snow himself, was born in a family without means and had to struggle for his education. The novel tells about the boyhood experiences that establish his determination to become a scientist, and takes him to King's College, London, where his determination finds reinforcement. Here he makes two friends—Sheriff, who is also a student of science, and Hunt, who regards knowledge of the self as more important than knowledge of the external world. Later he meets a girl, Audrey, with whom he enters upon an affair that continues for quite a time.

As Miles reveals himself—the novel is written in the first person—we see him as a man driven more by ambition than by anything else. Love means much to him, but, as he admits, it is not the dominant force in his life. He finds satisfaction in his work and even, on at least one occasion, a kind of ecstasy, but he does not live for the thrill of discovery. He wants to get ahead, and he plans his life accordingly. He chooses crystallography as his field because he believes that here he is most likely to make his mark, and he selects research projects that will make the right kind of impression. When there is a chance of his becoming director of a new institute, he plays politics shrewdly. And when, through a bit of carelessness, he loses the prize, he not only is sickened by his failure but comes to the conclusion that he lacks true devotion to science and that a scientific career is not for him.

The decision, important as it is, is not the climax of the novel. Miles humbles himself and starts to repair the damage his mistake has wrought, but at the same time, by undertaking a book on European affairs, he begins to build a career outside of science. Audrey has left him some time earlier to marry his friend, Charles Sheriff, and now he meets and falls in love with and marries Ruth. Since she is rich, he no longer has to worry about money, but he works hard to achieve his ambitions. Trying to help his friends, he finds that Hunt cannot be helped: his passion for failure, so inextricably interwoven with all his good qualities, is too strong. Sheriff, on the other hand, does well under Miles's tutelage, but a time comes when Miles discovers that Sheriff is not above a bit of faking. Now he has to choose between loyalty to the scientific ideal and loyalty to his friend and he chooses the latter.

"The Search" is strikingly like the novels in the "Strangers and Brothers" series. Arthur Miles bears an obvious resemblance to Lewis Eliot, the narrator of all the novels in the series and the central character of some, and I have no doubt that both resemble C. P. Snow. Like Eliot, Miles has an intense curiosity about other people, and at the end he is working towards, if he has not yet achieved, Eliot's kind of self-understanding. "The Search" gives us a rich and many-sided account of human behavior, exactly the kind of thing Snow's admirers have come to expect from him.

What, to come back to Snow's prefatory note, does "The Search" tell us laymen about science and the scientists? A great physicist, I. I. Rabi, has said:

> Most writers write about scientists as if they were either men from Mars or earnest boy scouts intent on a meaningless task which may nevertheless blow us all sky high. Snow's characters are gifted human beings with every degree of commitment to the enterprise of discovering new knowledge.

That is where Snow makes his major contribution to our understanding of scientists—in his presentation of the various degrees of commitment. No one in the book has the romantic devotion to pure truth that Sinclair Lewis celebrated in "Arrowsmith"—a novel, by the way, to which Snow has an anachronistic allusion—and only a few come anywhere near it. Some of the scientists portrayed are opportunistic, some are mediocre. Even those who are both conscientious and brilliant have other commitments than their passion for science. Much of the time they act like the rest of us: witness, for example, the haggling over the institute.

SO MUCH is made of the human weaknesses to which scientists are liable that one might come to think of Snow as hostile to science. After all, Miles twice seems to repudiate the scientific ideal: first when he turns from science as a career, and again when he tears up the letter calling attention to Sheriff's falsifications. But Snow has no quarrel with either science or scientists. He does not blame scientists for being human; he blames them only for not understanding their motives. That, I take it, is the point about Miles: he can see that he is driven by much else than devotion to science; he can admit, when the time comes, that he has lost such devotion as he once had or thought he had. When he decides not to expose Sheriff's commission of "the major scientific crime," he is merely recognizing and being true to his own nature.

Because Snow does know science and scientists, the novel is enlightening to the layman in a variety of ways. But at its core it is a novel about the importance and difficulties of self-knowledge. If this is a problem for scientists, it is a problem for the rest of us too.

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Has Anyone Seen a Trend?

If there is a difference between a span and a phase, between Auden and Edith Sitwell, Homer and Kazantzakis, or even between John Ciardi and Anne Lindbergh—so differs, according to SR*'s quarterly guest poetry critic Winfield Townley Scott, an event from a trend.*

By WINFIELD TOWNLEY SCOTT

IS THERE a "tendency"? Has there been an "event"? People like to ask these questions of current poetry despite historical evidence that they are almost invariably answered incorrectly: that we do not perceive a tendency until it is over, and that we commonly miss the real event when it occurs since we are busily celebrating false ones.

One thing is certain: contemporary verse *tends* to be prolific in production. If most of the product is mortal, that, too, is the usual case. I have not winnowed for comment only that which seems destined for the ages; but I have silently dropped a dozen books which are bad in uninteresting ways. As for the rest, most poets' promise must exceed their grasp, or what's a reviewer for?

Two large enterprises in poetry have occurred, both of the sort temporarily assumed to be an "event." I doubt that either is, either Dame Edith Sitwell's huge anthology, **"The Atlantic Book of British and American Poetry"** (Atlantic-Little, Brown. 1,092 pp. $12.50), or Nikos Kazantzakis's huge narrative, **"The Odyssey"** (Simon & Schuster. 826 pp. $10.).

My two cents' worth on Kazantzakis's "modern sequel" to Homer (handled far more fully and generously in *SR* Dec. 13) is that the book is at best a freak and at worst a thumping bore. The attempt, first, is an impudence of supererogation. But, granting the right of brazenness as a portion of any poet's license, we are presented with a work utterly inimical —and in no useful way—to all the concentrated subtleties of which poetry is capable. There is a place in contemporary verse for kinds of narrative; but storytelling *per se* is in our time the business of the lowest kind of novel. Embodied as poetry, it is necessarily a fake primitivism.

Dame Edith's selection of great verse from pre-Chaucerian times to our own is of course to be taken seriously but not—since we are neither editor nor publisher—solemnly. It is not news from Mount Sinai. As to the vast richness of English verse, the selective judgments of time and those of Dame Edith are in agreement. Her surprises occur in that ever-tricky field of anthologizing the contemporary, and here, though she ably represents such poets as Eberhart, Lowell, Ciardi, Roethke, Shapiro, she includes some unremarkable dross from both sides of the Atlantic; and her omission of Edwin Arlington Robinson is either scandalous ignorance or scandalous bad taste. Her little essays, arbitrarily here and there as the spirit listeth, incline to be schoolgirlish: Herrick's "poems are as subtle, and as delicate, as the breaths of air and perfume wafting through the branches of a flowering tree, or the stillness of a sweet night." There is a great deal of this, interwoven with quotations from other people about still other people, and an obsessive consideration of the movement and color of vowels.

In short, "The Atlantic Book" is in many ways a very good anthology drawn from a wide and lifelong intimacy with English poetry, and it stands somewhere near but not, after all, among the best in the field. See Auden-Pearson. See Untermeyer.

Two of Dame Edith's enthusiasms (I am not prolonging quarrel here but only attempting a transition) which I cannot share are for Roy Campbell and George Barker, each just out in a collected volume.

CAMPBELL'S **"Collected Poems"** (Regnery. 256 pp. $6.50) is apparently one-third of his work. It contains nothing of the Bodley Head (1949) edition of his collected work, and its preface makes mention of a third volume to come. This energetic, swashbuckling, hard-hitting, outdoor-Hemingway-type, British colonial poet made a big noise in poetry (with "Adamastor," "The Flaming Terrapin," etc.) as the 1920s grew into the 1930s. It sounded like a strong, new voice. But, for all that, the Eliot tone persisted on the one hand and the new Auden verse and politics, both also alien to Campbell, took over on the other.

Campbell persisted with his prodigious couplets in praise of horses and the full life and in satire of the Bloomsburyites and similar literati and of Communists. They just aren't first rate. His great energy is dissipated in wordiness, his vitality descends into an egomaniacal long-windedness. His plain, never subtle style is of course unfashionable but it seems, too, what new poetry can never seem, old-fashioned. Our age is so decidedly not Byronic that attempts at Byronism inevitably seem false. Certainly there are limitations in the kinds of poetry Eliot and Auden have imposed upon us, but it is extremely doubtful that the next corrective will emerge from Campbell's brand of reactionary shouting.

BARKER'S **"Collected Poems: 1930-1955"** (Criterion. 245 pp. $4.50) is also noisy, but its demerits are different. Barker, too, is verbose and, in a phrase of his own, "inspired to violence." In general his poems strike one as a nonfunctional mix of Auden and Dylan Thomas, but without Thomas's necessitously driven rhetoric or Auden's brains. "Keel-hauled across the starry death of God" is a characteristic violence so meaningless as image and idea—all Barker and no bite—that we see at once why his verse remains so unlovable as it persists in clamoring all over us. What he says—"To those that love there are no dead,/Only the long sleepers" —is sentimental and banal. Or (same page) consider: "How dare the greatest die?" And how he says things turns out, so often, to be the tired gestures of energy:

My love, my love, lift up your joystick hand.
Dismiss the dividing
Grief. Bring, bring again the kiss and the guiding
Glory. From his hiding
Place in the cleft of the cloud . .

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There, in no time at all, a rigamarole of Joyce, Auden, Shakspere, Hopkins. No.

It will not, I trust, seem chauvinistic if I begin praise with the collected work of an American poet if, further, I hasten to say there are reasons why no one should find *altogether* lovable the oddly mixed *oeuvre* of Theodore Roethke. I cannot feel that his various phases, unlike those of the fickle moon, are always admirable. And I am among those readers, no doubt tiresome to the author, who most cherish Roethke's beautiful greenhouse poems as still his freshest, sanest, realest, most evocative verses. "Even the dirt kept breathing a small breath."

These came along as a second step after a rather tame but sometimes very nice lyric commencement, illustrated best perhaps by the simple but memorable poem "Night Journey." They were followed by large, illogical poems characterized by such inquiries as "Can a cat milk a hen?" and "What's the time, papa-seed?" Then, with admitted hints from Yeats, Roethke returned to a more controlled and complicated lyric. There are overlappings. The recent "Meditatations of an Old Woman" combine Yeats and the babytalk, and even a touch of Eliot.

Everywhere in Roethke's poetry there is nervous liveliness and rich phrasing. I confess to an unresolved uneasiness. If—as I do—I find those ejaculatory, non-sequitur poems an unpleasantly deliberate eccentricity, yet I feel, as most readers do, that they especially *are* the Roethke of whom one thinks. In any case, he is impressive because he is not, finally, like anyone else. The whole span is on display in **"Words for the Wind"** (Doubleday. 212 pp. $4).

And now we come to a great and at last deservedly honored name in American poetry; one of the immortal names. And if in **"95 Poems"** (Harcourt, Brace. Unpaged. $4.) E. E. Cummings says little or nothing he has not said before, and the reviewer in turn can think of little or nothing that has not been said about Cummings's poetry, well—to quote Oliver Gogarty's best poem— "What is there to say but 'Glory be to God!' "

Cummings has always been, and he stays there, on the side of spring and love; now aging, he still cannot get over April and the moon and the beauty of women. Conversely (see, in this new book, the venomous poem about Hungary, "Thanksgiving") he has angrily satirized hypocrisy, smugness, stupidity. This is as much and as important a part of Cummings's work as his ever-renewed lyricism. His moods and his ways are no longer news, though in this latest book there is a marked recurrence of the autumnal and death motif. The first poem in the book—here it is to have fun with—sounds this motif:

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To have fun with it. And it occurs to me that throughout his career Cummings has restored joy to poetry incomparably beyond any poet of our time. This, especially in our time, is a great accomplishment. These poems with intertwined images enwrap layers of meaning, and their highly personal style can accommodate satire, irony, the portrait poem, the love lyric, without altering its basic metabolism. His extreme aliveness, his wonderful tenderness, his deep reverence for life itself, his complementary revulsion at whatever demeans the individual or would suppress the spirit or deny human love—all this has made him the latest important expression of the New England Transcendental tradition. His ways of expression differ from theirs as theirs differ among each other, but Cummings belongs with Emerson, Thoreau, Dickinson, and Robinson.

It is an equal pleasure to praise a new name. Or almost a new name. **"A Place to Stand"** (Indiana University Press. 62 pp. $2.75) is David Wagoner's second book of poems. In its kind it is the most brilliant work since Richard Wilbur first came on the scene. Wagoner is a splendid lyric poet who gives us not mood alone but intellect and, above all, responsible imagination. An overmechanization of structure may chill some of his lyrics, but for the most part they are managed with unobtrusive skill—something of Yeats's strong management, a flavor akin to Thomas's vocabulary, and yet not imitative. Without space to quote an entire poem, I find I don't want to quote him; this is a tribute to the involved development of each poem, its feel of rounded wholeness. His imagery is often weird, haunting, suggestive; never limply so; always with sinew and vigor. His music convinces me that, after all, rhyme need not be left—as I sometimes feel it should be—to good light

PICASSO BY THE SEA: During the years 1949-1951, Pablo Picasso lived at Vallauris, on the Mediterranean coast. The sculptures, paintings, and ceramics from this period are depicted in the 100 illustrations of **"Picasso at Vallauris"** (Reynal, $10). Often he used his wife, his son, and the animals of neighboring pastures for his models. Sometimes, as in the paintings on the ceramics above, he turned for his source to the wordless faces of ancient Greece.

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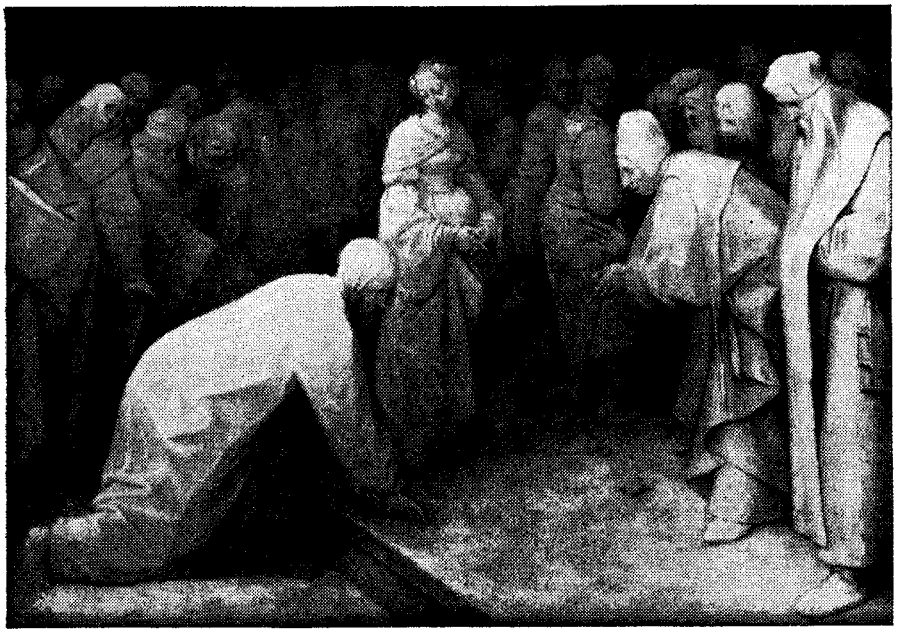

"THE PEASANT BREUGHEL," he was called by his sixteenth-century contemporaries for his lusty and vibrant paintings of peasant life. Gustave Gluck's large and handsome book, **"Peter Breughel the Elder"** (Braziller, $20), reproduces in color eighty-two paintings, as well as forty-one detail sections from larger works. The painting, above, "Christ and the Woman Taken in Adultery," shows how Breughel enriched a traditional theme with his own intensely human vision.

verse and bad hucksterism. A really exciting new poet.

"Body of Waking," by Muriel Rukeyser, (Harper. 118 pp. $3.50), adds some more pages—not the entire 118, but some of them—to her steady, solid accomplishment. To my utter agreement, Miss Rukeyser is one of those who has never written as though she thought poetry "a game." Her first poems of more than twenty years ago antedate that currently fashionable, chi-chi attitude (which apparently requires a religious background), and from the first she has barged ahead, dedicated to the proposition that for her the poetry is in the meaning.

Now this attitude, wholly admirable, has too often seduced her into writing out of an immediacy of emotional or intellectual involvement which dates much of her writing. The energies of deep conviction have often failed to lift the verse beyond journalism or above speech-making. Her frequent impulse to "get up" a subject has resulted in massive, temporarily interesting theses, but not in poetry—as in the book on Willkie, passages from which are included in "Body of Waking." Yet rarely has she failed to be rewarding in the heavily pregnant line, all the way from her youthful announcement, "Breathe in experience, breathe out poetry," to—for example, in this new collection—"Where there is giving needing no forgiving."

But I say all this about what might be called characteristic Rukeyser to make a different point. There is in her work a lyric, personal change. Such a wonderful poem as her tribute to Cantinflas of a few years ago illustrates what I mean and, in "Body of Waking," such a poem as "Mother Garden's Round," among others. I hope to see Miss Rukeyser increasingly stand not outside but inside her poems. Growth and development are still going on.

Maybe an unmistakable poetic talent lurks in **"Poets of Today: V"** (Scribners. 191 pp. $3.95), but if so it lurks beyond my probing. Usually these 3-in-1 annual cans of new poets are at least one-third exciting. New perhaps, yet Mr. Wheelock's current trio made me feel I'd been there before: O. B. Hardison, Jr., learned and literary; Kenneth Pitchford, jolly and literary; Sheila Pritchard, homespun. The failure may be mine. I feel I should say, don't take my word for it but have a look yourself. For these Scribner annuals have never been unrewarding.

May Swenson is a young poet who first came to book in a "Poets of Today" volume. Now she has a new collection all by herself, **"A Cage of Spines"** (Rinehart. 96 pp. $3.75). She is a devilishly clever technician, and the book fairly buzzes with variety. What a show-off! For much that she does is variety for its own sake, not functional (as in Cummings). Tricks, as in the unreadable poem on Frost, can kill a poem with self-consciousness. Mere stunts in poetry are basically frivolous. And we are all wearied of ladies who can't write exactly like Marianne Moore but try over and over for her exactitudes in descriptions of birds and animals. And yet there are admirable poems in this book when Miss Swenson just quiets down: poems such as "Her Management" and "A Haunted House" and the charming "The Centaur," and many passages of intensely lively, beautifully managed concentrations. Only a fine poet can do this:

> I see the pigeons print
> a loop in air and, all
> their wings reversing, fall
> with silver undertint
> like poplar leaves, their seams
> in the wind blown.

That's an ear. The real thing. The thing you have or don't. The thing that cannot be taught or learned. And I trust Miss Swenson unlearns her gamey ways and relies on her genuine individuality.

One of those smart eighteenth-century Frenchmen, observing that poetic criticism should evolve from the practice of poetry, remarked that a critic turned poet is—or would be—a monster. Well, we have such this season, but a most amiable monster. **"Goodbye Earth, and Other Poems,"** by I. A. Richards (Harcourt, Brace. 64 pp. $3.75), is the rather flabbergasting late-on appearance as poet of one of our greatest critics. Perhaps we should not be flabbergasted, for what we have in this little collection is, however rare, an instance of how wit, learning, mastery of prose, a dazzling intelligence, can combine as a substitute for poetic talent and render, in fact, a superior kind of light verse. Superior, because the line is packed tight, the intricacies of form and rhyme scheme are controlled as though they were inevitabilities. When Richards approaches the pure lyric, we feel the absence of the real juice; for the most part he stays on the sure ground of his extraordinary mind, and watching it in play is most pleasurable.

Which reminds me to make a no doubt unnecessary note, that the poems in Phyllis McGinley's **"Merry Christmas, Happy New Year"** (Viking. 47 pp. $2.50) are admirably made and altogether delightful. There's a kind of sweet restfulness to be found in poems lightly intended, expertly tailored: a way-station of poetry where sin and striving cease.

And I want to say, too briefly, that Harold Witt's **"The Death of Venus"** (Golden Quill Press. 72 pp. $2.50) cer-

(*Continued on page* 32)

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STATECRAFT

Economics of the Roosevelt Age

"The Coming of the New Deal," by Arthur Schlesinger, Jr. *(Houghton Mifflin. 669 pp. $6.75), is the second volume in the author's projected tetralogy, "The Age of Roosevelt." Lindsay Rogers, who writes frequently on American and international politics, examines the book below.*

By Lindsay Rogers

WHEN, in 1827, Henry Hallam published his "Constitutional History of England," he ended the story with the accession of George III, seventeen years before his own birth. This, he said, was "from unwillingness to excite the prejudices of modern politics, especially those connected with personal character." Present-day historians have no such scruples and seem to prefer to write about periods in which they have lived and for readers who, for the most part, can recall the events that are described.

In the first of his series of volumes on the Age of Roosevelt, Mr. Schlesinger dealt with a period which he could remember but dimly. When "The Crisis of the Old Order" began in 1919, Mr. Schlesinger was two years old, and personal recollections could not have greatly influenced his conclusions that during the decade of the Twenties the Democratic Party was for political idealism and morality and that few Republicans were on the side of the angels. Six months after Franklin Roosevelt's first inauguration, Mr. Schlesinger was a student in Harvard College and must have discussed with his fellow students the "prejudices" and "characters" appearing in this second volume, which ends with the sweeping Democratic victories in the Congressional elections of November 1934. How greatly personal knowledge influences an historian's judgment not even the historian can tell. It should be irrelevant in respect of objectivity for one can well be less dispassionate on the causes of Rome's fall than on John Foster Dulles's "brinkmanship." Taine, it was said, did not let documents speak to him; he always spoke to the documents.

Unlike Taine, Mr. Schlesinger seeks to learn from a documentation that grows more and more formidable. Presidential utterances, Congressional debates, the legislative grist, and the activities of the regular departments and of the new alphabetical agencies that mushroomed—AAA, PWA, CCC, CWA, and NRA. (The statute was the National Industrial Recovery Act but General Hugh Johnson, mindful of the fact that the British Defence of the Realm Act had become DORA, guarded against NIRA.) There are apt quotations from contemporary newspaper comment, diaries (Rexford Tugwell's unpublished one is heavily drawn upon), the spate of books penned by Mr. Roosevelt's associates, and the recollections recorded in the Oral History Project at Columbia. "The recollections of the participants," Mr. Schlesinger remarks, have sometimes "proved as confusing as the events themselves doubtless were."

Then there are the Roosevelt papers —5,000,000 pieces in the original Hyde Park collection and now greatly augmented. (Gladstone kept 60,000 letters. "Three fourths of them might well have been destroyed as soon as read," Lord Morley remarked, "including a certain portion that might just as well have been neither written nor read.") Mr. Schlesinger has studied photographs and is not chary of dealing with personal character. Of the many estimates deserving of quotation I give only one: "square-jawed, thick-necked, red-faced, profane, he combined the qualities of a top sergeant, a frontier editor, and a pro-consul." Readers as old as Mr. Schlesinger will not need to be told that the man was Hugh Johnson.

Henry A. Wallace (1941).

Harold S. Ickes (1934).

Schlesinger-described Wallace: "blue eyes sometimes alive with interest or passion, sometimes glazed and wandering"; Ickes: "wanting everyone to love him but trusting no one."

Needless to say, Franklin Roosevelt is the hero, and the subordinate characters in the play are judged as much on the basis of their support of and admiration for the star as on the ability with which they spoke their lines and timed their entrances and exits. Sometimes Mr. Schlesinger seems to attempt to fuse the infusible. If one play did not work, the quarterback tried another (Mr. Roosevelt's own figure of speech), but did he always remember at which end of the field his goal line was? And what of the plan to buy gold, which was sold to the President by an agricultural economist, George F. Warren? "The determination of the monetary policy of the United States," it was said at the time, "is now 'Mr. Warren's Profession.'" Mr. Schlesinger does not quote this, but lists the pros and cons and discloses the levity with which the policy was embarked upon.

Not the least interesting chapters are the concluding ones on the resurgence of the Right, the welling tide of hatred for "that man in the White House," and "the evolution of the Presidency." Here Mr. Schlesinger asserts that Mr. Roosevelt may not have been the bad administrator most people think he was; that permitting, even encouraging duplication and jurisdictional fights, and that concealing his real intentions from officials whose duties were to carry them out, may have created a chaos that had merits. Inventions were necessary and creative impulses unhampered were perhaps more important than definite lines of responsibility. The argument is ingenious and merits the attention of students of public administration.

The detail of this volume suggests that to reach the end of the Roosevelt age Mr. Schlesinger will need more than the four volumes he originally contemplated. Sometimes the detail seems to be excessive. Persons who remember the NRA may be interested in the minutiae of the feud between Hugh Johnson and Donald Richberg, his general counsel, but are they of any concern to one whose political recollections begin with Pearl Harbor? And when the President made martini cocktails, was he, as Mr. Schlesinger says, overgenerous with the vermouth? A different version is that he drew attention to his careful and exact measurements and then slushed a lot of extra gin into the shaker. But no matter what the fact was, martini lovers will think that their own formulas are better.

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How to Influence History

"The Art of Politics," by Rexford G. Tugwell *(Doubleday. 295 pp. $5), portrays three "spectaculars" in public service: FDR, Fiorello La Guardia, and Luis Muñoz Marín. The former Brain Truster's book is reviewed by Samuel Lubell, author of "The Future of American Politics" and other books.*

By Samuel Lubell

A WOULD-BE politician, searching Rex Tugwell's "The Art of Politics" for some do-it-yourself hints, might emerge clutching the following formula for political success:

Never forget that "the politician's first business is to get elected." To that end work, trade, maneuver, intrigue. Early in your career "initiate political fisticuffs" which will enable you "to claim credit as a champion of the people's interests." That you lose the battle is unimportant so long as you leave yourself properly labeled in the public's mind.

Be as determined as a bulldog in your objectives, but flexible "concerning means." Vagueness and obscurity will permit diverse supporters to see in you the opinions they wish you to have.

If you are a poor administrator, don't let that trouble you. "If politicians had to be judged by efficiency in office they would be failures." Nor need you fret about failing to carry out promises made to get elected. Freedom from this torment is one mark of "genuine greatness" as a politician.

Shrink not from being a "ruthless discarder" of troublesome supporters. "Punish your friends and reward your enemies," since your friends have nowhere else to go. Act, in short, like one possessed of a destiny that requires you to be the center of attention and power and which leaves no room for "that most detestable of all creatures to a politician," a successor.

Since all this may sound pretty cynical, it should be noted that these observations are drawn from Tugwell's close association with three eminent do-gooders—Franklin Roosevelt, Fiorello La Guardia, and Luis Muñoz Marín, who manipulated the Puerto Rican people into forsaking the ideal of an austere, unmattressed independence for the comfortable bed of a subsidized Commonwealth status as a United States possession.

STILL, Tugwell is much too romantic to have produced an American version of Machiavelli. In fact, the main appeal of this rambling, loosely strung book divides between Tugwell's shrewd insights into the art of political acting and the portraits he draws of his three main actors.

His treatment of these three "spectaculars" is uneven. Most vivid are the sketchings of "that pint-sized, pugnacious, uneducated, and highly emotional" mayor of New York, who, for all his honesty, "left a bankrupt city" when he went out of office and "died a disappointed man because he never became President." Tugwell is at his best in describing "the terrible year" La Guardia suffered before Roosevelt's decision to seek a third term was made clear and while La Guardia actually believed he had a chance of moving into the White House.

Muñoz Marín emerges as a more elusive character, probably because Puerto Rico remains unknown to most of us. One could not ask for a better short introduction to the island than Tugwell's account of how Muñoz Marín schemed into being a whole new party which achieved such political dominance, in the face of Washington's displeasure, that the opposing party had to be subsidized to exist.

It is when he treats of Roosevelt, whom he served as a Brain Truster, that Tugwell is dissappointing. Partly it is because he tells us nothing really new. But also in writing about Roosevelt, who was his first political love, Tugwell lapses from the cool detachment with which he views La Guardia and Muñoz Marín and becomes involved with his own wistful imaginings of what Roosevelt might have been.

Thus Tugwell strains to develop the thesis that there comes a time when a politician may be transformed into a "purified statesman," when he no longer has "to manage people and events with a view to clearing out of his path potential rivals . . . when he is free to lead the people who have become his into wiser ways and happier arrangements." Tugwell contends that this became Roosevelt's role after Pearl Harbor. The thesis sags badly, though, under the implausible arguments advanced to demonstrate that if Roosevelt had lived he would have found ways of getting along with Russia. To Tugwell Russia appears just a misunderstood juvenile delinquent.

It is strange to read: "Roosevelt seemed to Stalin to be one Western representative he trusted" in the same pages which point out the "exemption events give to campaign pledges" or which list as one characteristic of the master politician "a thick armor against probings" so that "not even those nearest to him" will know what is in his mind.

To sum up, despite some dubious judgments, this remains a provocative study of political leadership.

". . 12:01 we're out'a the bank into the getaway car, 12:35 we meet Slate standing by with a hot space cruiser, zoom, away we go, hole up on the moon 'til the heat's off."

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Commander Anderson (right) and officers on bridge of the *Nautilus*—praise for the crew, the Navy, and the White House.

From Dog Teams to Submarines

"Nautilus 90 North," by Commander William R. Anderson, USN, with Clay Blair, Jr. *(World. 251 pp. $3.95), is the story of the first submarine to reach the North Pole traveling under ice. Polar explorer and military geographer Paul A. Siple, who is scientific advisor to the Army Research Office, considers the account for us. Dr. Siple served as the station scientific leader at the IGY Geographic South Pole Station.*

By Paul A. Siple

THIS year marks the fiftieth anniversary of Robert E. Peary's successful journey over ice floes by dog team to reach the Geographic North Pole. Time after time this dedicated Naval officer tried before he finally succeeded in leading the first party of men to reach the earth's invisible axis of spin.

This axis rises through a deep polar sea topped with a thin capping of sea ice to emerge at the surface of the northernmost point of earth. The world was electrified by the news of this great achievement in the attainment of another of man's long sought-for quests.

Thirty-two years ago, Richard E. Byrd and his pilot-campanion, Floyd Bennett, became the second party to reach the North Pole. Again U.S. Navy personnel pioneered a route to the Pole—this time by air. Surface ships have tried to reach the Pole but always the ice proved too strong to permit ships to break through even in midsummer when the ice weakens by melting.

George A. Wilkins, the late Sir Hubert, in 1931 received the loan of a nearly unserviceable submarine from the U.S. Navy for his attempt to duck beneath the Arctic Pack to get to the North Pole. Although the Wilkins attempt with this submarine, named after the *Nautilus* of Jules Verne, was not successful, the idea of reaching the Pole by submarine remained an intriguing one. When atomic-powered submarines, with great underwater range, became a reality, the possibility of reaching the Pole seemed certain.

Although flights to the poles are now so commonplace as to be unnewsworthy, the transit of the Navy's atomic-powered *Nautilus* from the Pacific to the Atlantic and the *Skate*'s remarkable under-ice penetration from the Atlantic last summer focused new attention on the attainment of the geographic North Pole.

Commander William R. Anderson, USN, and his writer, Clay Blair, Jr., another submariner tell the story of the first underwater-ice crossing of the North Pole in "Nautilus 90 North."

The story deals largely with the birth of the transpolar idea and the planning for its execution. Anderson liberally gives credit for the idea to various individuals throughout the Navy and on up to the White House. He also, in the best traditions of the Navy, extends praise to his crew during the operation.

There are relatively few pages in the book dealing with the actual period of travel under the polar pack ice. Enough and sufficiently dramatic, however, to give the reader a feeling of a fish's problem in midwinter when his shallow mill-pond is frozen nearly to the bottom, leaving barely room enough to wriggle from one deep spot to another. The big difference is that the fish can stay under ice all winter, but men, in even an atomic sub, must eventually surface for fresh air.

The first submarine to open a transarctic route is significant, as will be the first ice breaker to blast its way to the Pole, the first jet air tourist flight to the Pole, the first party to maintain a year-round habitation of the North Pole despite the constant movement of sea currents and ice floes. And as man cuts his ties to the past, polar literature, like "Nautilus 90 North," will tend more and more to cut the ties with the romantic period of exploration and reflect only the mastery of the moment.

Those familiar with North Polar exploration may feel that this book shortchanged Peary-Byrd-Wilkins and many others who pioneered in the Arctic. Even their contemporaries in the submarine *Skate* are virtually unmentioned. Self-assured and cheering their own accomplishment, 116 men in a modern "black Box" passed through the earth's northern axis using electronic guidance systems. No longer is it a question of men against the elements but, rather, a collection of technicians trained to operate instruments, gadgets, and sensing devices to "safe hand" themselves through an unfamiliar environment.

Modern polar explorers who never knew the howl of a blizzard, frozen noses, crevasses, or the long winter nights, they were men who looked at the world about them with sounding devices in a dark, wet world, viewing pen lines on a sheet of paper that told them when the ocean's mountainous floor rose or the ice above dropped down in jumbled stalactites.

NOT even the Nautilus navigator caught glimpses of sun or stars as they passed the Pole, but instead, they were guided through the invisible axis by modern navigational aids.

Here we see men not born or whetted by desire to explore the polar regions (who probably, for the most part, read little of anything beforehand about polar history) add to that history dramatically on 3 August 1958.

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Isaac Newton

William Harvey

—*Culver.*

Galileo

In Their Words, the Shining Climaxes of Science

"Moments of Discovery," edited by George Schwartz and Philip W. Bishop *(Basic Books. 2 Vols. 1,056 pp. $15), chronicles in the words of eighty-three of the world's greatest scientists 2,500 years of achievement. Ruth Moore, the author of "Man, Time, and Fossils," "The Earth We Live On," and a biography of Charles Darwin, reports on the work for us.*

By Ruth Moore

GALILEO once observed that Nature, being inexorable and acting only through immutable laws, cares nothing "whether her reasons and methods of operating be or be not understandable to men."

The Italian astronomer was entirely right in his observation, and consequently men have spent more than twenty-five centuries trying to ferret out and understand the natural laws that govern their own being and the world. At a few bright moments success has capped their continuing efforts.

It is these shining and essential climaxes that are brilliantly brought together in "Moments of Discovery," edited by George Schwartz and Philip W. Bishop.

In two volumes, the first on the origins of science and the second on the development of modern science, they present the work of eighty-three of the world's greatest scientists from the Greeks to the atomic physicists. And it is presented in the scientists' own words.

Here is Archimedes setting forth his postulates and saying, "Give me a place to stand and I will move the world," Antoine Lavoisier reporting the "air" that burned with such a brilliant light that the eyes could hardly endure it, and which he later named oxygen; Charles Darwin, recapitulating his argument for natural selection in the famous fourth chapter of the "Origin of Species," and Friedrich Wöhler recording his amazement that he had produced an organic, indeed an animal substance, from inorganic materials.

Sometimes the editors use an entire chapter or more; sometimes only a few pages. In either case it is the part of the scientist's work that made history and set new directions. For those who want to read farther, reference is always given to a good translation or edition—no small service in itself.

—*From the book.*

Frontispiece from Galileo's "Dialogue Concerning the Two Chief World Systems," 1632, showing Aristotle, Ptolemy, and Copernicus.

But this is no random collection of scientific writings. On the contrary, it is planned to bring out the growth and relationship of science in time and subject, and does so in a highly usable way. The first volume opens with an interesting and orienting chapter on "The Nature of Science and Discovery," and moves on to the technology that preceded science, to the beginnings of the scientific approach, to the scientific revolution as it was effected by Copernicus, Galileo, Halley, and Laplace, and later by Boyle, Newton, Leeuwenhoek, Black, Priestley, and Lavoisier. The second volume deals with the form and function of living things, with the processes and development of life, and with medicine, chemistry, and physics.

THE scientific evolution that stands forth, the constant broadening and deepening of understanding, is one of the greatest and proudest of human achievements. It is seen clearly here in this panoramic view of many centuries.

Impressive as such a collection is in its sweep, it would be incomplete if it stood alone. The authors have overcome this handicap of any anthology in section introductions which fill in the whole rich background and

(*Continued on page* 31)

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The Road to Berlin

BERLIN.

A MAN, his wife, and their teen-age son came into the long rectangular room. They were sturdily and warmly dressed. The man was well-built; his skin had the glow of excellent health. But there was a suggestion of weariness in the way he held his head. His wife showed her fatigue more clearly. She stared sadly out of swollen dark eyes. The boy was thin and stooped; his face was drawn and expressionless.

The man spoke in a low voice as he told his story. He was in his late forties. He had just come from Saxony, in East Germany. He said he was an electrical engineer and contractor. He showed me photographs of his home and his place of business with its modern equipment. Then he spoke about life in East Germany. He had done rather well in business, and he had no complaints. But some months ago he began to run into difficulties. He was a member of Jehovah's Witnesses. While the authorities did not interfere directly with his religious practices or activities, there were various annoyances that increased in frequency and severity with each passing month. The tax examiners would spend more and more time combing through his books and asking him questions. The people who worked for him began to feel petty pressures.

Then, one night, a man came to the house, flashed an official's card of one kind or another, and told the engineer he was wanted for questioning at once. The engineer did not return home until the following evening. All night and day he had been questioned. While he was gone the house had been searched.

It was then that the engineer reached his decision to give up his home, his business, everything he owned, and attempt to begin a new life in West Germany.

The first part of the break came when the engineer's twenty-three-year-old daughter was chosen as a delegate to the World Congress of Jehovah's Witnesses, meeting in Yankee Stadium in New York. She stayed in the United States for some weeks. On the way back, according to plan, she went to live in West Germany.

The big moment arrived several hours before I met the engineer. He and his family got into their car and drove to the outskirts of East Berlin. Then they abandoned their automobile, walked to the nearest subway station, and took the train to West Berlin. (There is complete freedom of movement between East and West Berlin on the trams and subways.) When they emerged they walked to the central relocation center for people who were fleeing from East Berlin or East Germany. All they had taken with them was a small suitcase of clothing and a briefcase containing business and family papers.

At the relocation center they were directed to the long rectangular room where they would be registered and where officials would obtain from them information essential to any effort to resettle them in other parts of West Germany. It was here that I met them. In the front of the room was the desk of the camp supervisor who explained the purpose of the forms the engineer was asked to fill out.

The supervisor explained that the family would stay at the relocation center for four or five days. By that time a place would be found for them near Frankfurt, where their daughter was staying and where they had friends. A small sum of money would be provided by the United States to help him get started. After that, he would be on his own. There was a demand for engineers of all sorts and he should be able to find a job. No one could guarantee, of course, that he could establish a business as large or as flourishing as the one he had just left; but he ought to hold his own. He would stay at the relocation center for several days while this was being arranged. Then, he and his family would be flown to a city in West Germany where officials were prepared to offer him every assistance. (Citizens of East Germany or East Berlin proper who cross over to West Berlin are very seldom permitted to settle in West Berlin. The city is already overpopulated, with consequent problems of housing and employment. Hence they are flown from Berlin, which is an island in East Germany, to a redistribution center like Frankfurt in West Germany.)

The supervisor asked the engineer to return to the same room the following morning when he would meet representatives of the occupying powers of Berlin, the United States, Great Britain, and France. He would be questioned again about his reasons for leaving and about the conditions of the area from which he came.

The engineer and his family then were invited to the dining room of the relocation center for the noonday meal.

The dining room was situated not more than 100 feet from the registration unit. Several hundred people were queued up irregularly in front of the dining room. The room was large and bright. It was fairly modern in design, with ceiling to floor windows on one side. It looked more like a college cafeteria than a refugee food center.

AS each person passed by the serving section, he was handed a deep aluminum dish containing generous portions of boiled beef, cabbage, and potatoes. This was the main meal. At night the serving would consist of a large bowl of soup and bread.

The dining room had accommodations for 500 people. This meant that each chair would be put to use several times for each meal, for an average of 3,000 people were cared for each day at the center. The usual time for each person to be served and fed ran fifteen minutes.

Most of the people in the dining room were middle-aged, though the cries of youngsters could be heard now and then over the scraping of chairs and the hubbub of mealtime

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talk. A young man of about twenty-five came over to where we were standing and asked if he could be of help. After a moment or two we were chatting freely. He said this was his third day at the relocation center. He was unmarried. He was an animal trainer in a traveling circus in East Germany. It had been made clear to him that if he expected to move ahead in his job he ought to become interested in political matters in a way that might advance the welfare of the German Democratic People's Government. In short, join the party. When he had failed to do so he lost his job. It was then that he decided to cross over to West Berlin. Just before he did this, however, he said with a grin, he had set fire to the car of the functionary who had advised him to join the party.

Standing next to the animal trainer was a poorly dressed, tall, ruddy-faced woman of about fifty-five. She listened to the young man's story, nodding when he spoke about having been advised to become more interested in political matters. In her own case, she said, there had been some slight pressure but no penalties when she failed to accede. Her trouble was that she had tried to smuggle medicines from West Berlin for a friend who worked alongside her in the factory. She was apprehended, but managed to get away before the trial. When I asked where she would go and what she intended to do, she shook her head and said she didn't know.

IN going over the records with the supervisor of the relocation center, I learned that there had been a marked shift in the type of emigre since the first wave in 1945. From 1945 through 1953, most of the people who came across the line were hardship cases. This was especially true in 1948 and 1953 when East Germany experienced a severe food shortage. Some of the people who came to West Berlin to receive the free food packages given by the United States in 1953 never went home.

From 1954 to 1956 there seemed to be an influx of young people—students and recent graduates in search of education without indoctrination. But in the last year or two middle-aged people, many of them well educated and in the professions, seemed to predominate. The reasons they now give have less to do with hardship than with intellectual or religious conviction, as in the case of the engineer.

The recent defections, it appears, may be more painful to the East German Government than earlier ones. Just in the three-month period from September through November of 1958, for example, East Germany has lost:

360 physicians;
728 engineers and technicians;
1217 professors and teachers;
671 writers, journalists, editors;
775 students—undergraduate and postgraduate.

The total in all these categories for the first eleven months of 1958 was well over 9,000.

Even this number, of course, is only a small fraction of the grand total of all the people who have resettled in West Germany during the past year. By December 31 the number will be close to 200,000. Since 1945, more than 2,500,000 East Germans have made the change. This is almost 15 per cent of the total population of East Germany at war's end in 1945 when the country was partitioned by the occupying powers.

One of the specific effects of the population shift has been a manpower shortage in East Berlin and East Germany in general, especially in skilled jobs. In West Germany, exactly the opposite has happened. The unemployment problem, while not critical, is nevertheless a matter of increasing concern to West Germany officials. East Germany has tried to capitalize on the situation by promising a job to anyone from the Western side who would like to migrate. Takers have been extremely few.

There can be little doubt that the constant manpower drain on East Germany has been one of the main reasons behind the determination of the Soviet to close the West Berlin gateway. Any country, even a large one, that loses physicians at the rate of 1200 per year, and engineers and scientists at the rate of 3000 a year, is going to be forced to plug the hole.

In withdrawing from Berlin, and in calling upon the Western occupying powers to withdraw too, the Soviet is playing upon the deep-rooted desire of the German people to get rid of the outsider. But the desire is somewhat mixed, to say the least. Almost any West Berliner you speak to may brighten perceptibly at the suggestion that all foreigners in a position of authority over him should leave the country. But he doesn't want to lose any of the benefits that come from the fact that the West, and, in particular, the United States, has a strong stake in West Germany. The German people are not unmindful of the fact that their astounding recovery from the Second World War was speeded in a large measure by the billions of dollars supplied by the United States. Nor are they unaware of the fact that this aid has been far greater than that supplied to France, and certainly to Poland, both of which were on America's side during the war and neither of which approaches the present economic power of Germany. Moreover, there is genuine fear that if all the occupying powers withdraw from Berlin, it will only be a question of time before Berlin will become an integral part of East Germany.

That West Berlin today is split down the middle—economically, philosophically, politically, socially—is one of the most visible and dramatic facts of the modern world. Indeed, the differences between the two sections are so great as to suggest that they are at least a continent and a decade apart. The differences have less to do with jobs and bread than with the contrasting personality of the two sectors. Economically, both sections have improved prodigiously in the past five years. East Berlin no longer has the bleak and somber aspect it did only five years ago. The people are better dressed, obviously better fed, and they no longer seem to amble. The stores now are well stocked with food. But there is still a heaviness to the place, a feeling suggested perhaps by absence of people on the streets, especially at night, and by the lack of variety or grace in the architecture of the new housing projects, although it must be recognized that the Stalinstadt housing development is the largest of its kind in the world. It provides low-cost housing for 30,000 families, many of whom, however, were admitted not only on the basis of need, but of political orientation.

West Berlin does not have the order or uniformity that is so apparent in East Berlin. In fact, much of it approaches the chaotic. But it is a sparkling chaos, full of artistic glints and human electricity. The visitor who comes to it today after having seen East Berlin first, as I did, feels as though he has been catapulted into a new age. There are people in the streets and in the shops in West Berlin; there is a swirl of life and bright lights and there is creative ferment. The city gives the impression that it is bursting with life, motion, vital thrust.

HOW do the people of Berlin react to the business of living in the blister heat of a world-crisis center? The attitude was seemingly one of cool detachment, though not indifference. People go on living; they work, raise families, visit one another, go to the movies, make small talk, and read about the Berlin crisis in the newspapers. In this, the Berliners were not unique. I found the same kind of calm fatalism in the attitude of people in Jerusalem at the height of the Suez

(*Continued on page* 30)

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LETTERS TO THE EDITOR

CARUSO IN MY HEART

MR. ARCHER FINCH has reviewed my book "Only in America" for the little magazine the Book-of-the-Month Club publishes for its subscribers. Mr. Finch says, ". . . the indefatigable Mr. Golden (he manages to pound out 15,000-20,000 words of copy every month) writes on topics of the widest general interest—including Presbyterians, bubblegum, the Republicans, Jewish customs during his own boyhood on New York's lower East Side, the segregation of Negroes, nude Swedish movies, and Countess Mara ties. Though often serious and invariably liberal in his views, he is not another Emerson, and though sometimes witty and much to the point, he is hardly another E. B. White."

Now, there has never been any confusion in my mind whether I am another Emerson or not. I never went to Harvard, I never preached at the Second Unitarian Church in Boston, I do not edit *The Dial*; and I literally worship Emerson. The fact that someone compares me to him is quite alarming. It is also true that I admire E. B. White, who writes the best of the "Talk of the Town" column in *The New Yorker* Magazine. I have read and reread "The Wild Flag," a book of Mr. White's essays which has received too little attention. This comparison also frightens me.

What Mr. Finch has done is to reintroduce Matthew Arnold's "touchstone" theory of criticism. You judge works by a method of comparison. You pick out a template, say, Homer's "Iliad," and you see how other epics measure up to it. With this theory you can see that Milton is not as good as Homer and Dante lags very far behind. Of course, this theory works both ways. Mr. Finch is high-hearted and generous, but he is not a Lionel Trilling and he is not an Edmund Wilson; which suggests to me that the "touchstone" theory of criticism offers a world of possibilities. Both Richard Tucker and Cesare Siepi warm the cockles of my heart, but they will never erase my memories of Enrico Caruso and Antonio Scotti.

HARRY GOLDEN,
Editor, The Carolina Israelite.
Charlotte, N. C.

NOT TOO ACCURATE

AS AN ADMIRER of Harry Golden's many contributions to American life and letters, it distresses me to have to point out a few misrepresentations in his review of my book "More in Anger" (*SR* Nov. 15). An author has no business taking issue with a reviewer's opinion (although she can be puzzled by being praised in one paragraph for qualities which are denied her in another), but misquotes are, I think, legitimate cause for objection. Mr. Golden writes, "She deplores the pornographic violence of the comic books as a cause of juvenile delinquency, black leather jackets, and the complete disrespect for authority." He fails to mention that this is part of a foreigner's comments on America in a fictitious conversation in a satirical sketch.

Later he writes, "Nor can she change society by boasting, as she does, that 'It was different and better when I was young'." Not only is this not a quote from my book, but hardly an example of the "brilliance and hard core" he attributes to my prose in general.

"Nothing she says," writes Mr. Golden, "would ever anger you or make you indignant. You agree; that is her chief fault." If I really do say what others feel, then Mr. Golden not only endows me with a universality which I gladly accept, but makes his own objections invalid.

MARYA MANNES.
New York, N. Y.

THROUGH HISTORY WITH J. WESLEY SMITH

"It'll never work. People will go blind looking for the right key."

FORTHRIGHT ADVOCACY

NO DOUBT C. Wright Mills oversimplifies in "The Causes of World War III" (*SR* Dec. 13) and lapses too often into social-scientese, but reviewer Lindsay Rogers fails to give him enough credit for taking a strong and considered stand on *the* issue of our time. Professor Rogers rightly urges "continual negotiations" rather than "unilateral disarmament," citing Germany as a case in point. But diplomatic negotiations, like all bargaining, presume a willingness to make concessions—for example, exclusion of West Germany from NATO—in order to achieve a desideratum such as the creation of a neutral zone in Eastern Europe. Responsibility for our diplomatic inflexibility, moreover, should be pinned on some identifiable group of human beings, even if it is unfair to call them "war lords of Washington." If political scientists like Professor Rogers were more forthright in advocating foreign-policy positions, instead of falling back into evasions like "agreements when possible," sociologists like Professor Mills could stick to their last.

JOHN M. PICKERING.
Englewood, N. J.

SYNTHESIS ON CONCEPT

MORTIMER ADLER (*SR* Nov. 22) says he has been at the business of ideas for forty years, yet under his headline "What Is an Idea?" he does not answer his own question. He tells us at length what an idea is *not*, never what it is. He approaches definition with "each of the great ideas is a complex and organic whole" . . . "each is a world of its own" . . . "they comprise the configurations of the human mind . . . they have always been (its) common stock." Bold, stimulating, and advanced as is Mr. Adler's thesis, it would gain cohesion and credibility were it to contain a definition from which to build. I submit this one: "An idea is the synthesis of man's thinking upon a fundamentally important concept."

KENNETH GROESBECK.
New York, N. Y.

FACTS OR IDEAS

1. DOES Adler use idea and concept interchangeably?
2. Why has Adler given opposite ideas in some instances and not in others? (Love is listed as an idea and not Hate.)
3. Adler states, "The telephone book is full of facts, but it doesn't contain a single idea." Does the telephone book contain information rather than facts?
4. Don't books such as history books contain information or knowledge about factual events?

DAVID T. GROSE.
Oswego, N. Y.

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BROADWAY POSTSCRIPT

A Minority Report on "J. B."

ARCHIBALD MACLEISH'S "J.B." reviewed once in these columns on the occasion of its world premiere at Yale (*SR* May 10, 1958), has in a somewhat revised version opened on Broadway to superlative-filled reviews from three-quarters of the critics. As a member of the minority, I can only say that "J.B." is an admirably big attempt to understand modern man's relation to God, but one which adds precious little to what has already been said more beautifully in the Bible or more provocatively by other modern thinkers on the subject.

Even if this modern parallel to Job, personified by a wealthy American businessman, arrived at a startling new statement of the human condition (which it doesn't), and the verse were liquid gold (which it isn't), "J.B." would still have to be judged as drama. And as drama it is not very effective. For drama presupposes real characters doing things for reasons discoverable by an audience. For instance, if in a play a dictator should decide to visit agony and torture on a prosperous citizen for the purpose of testing this citizen's loyalty to him, the proceedings could be made dramatically interesting. This would be true even if the audience knew in advance that the victim would remain loyal, because we would share the uncertainty both of the dictator and the victim. But if we assume an omniscient dictator performing a demonstration rather than a test, and a victim who cooperates with this antagonist, we do not have a drama, we have a pageant.

"J.B." seems to be just an inconclusive effort, despite the fact that the play's final scene contains the author's persuasion that the victim, in his acceptance of an unjust world and in his willingness to begin over again after each undeserved calamity, achieves a mortal magnificence. This last thought is, of course, not original with Mr. MacLeish. The latter's contribution is the lyrical verse, which most of the time doesn't sound too hifalutin', and the specific details he invents for his modern parallels.

Very often, when one sees a tragic accident or reads about it in a newspaper, one feels that some of the details would be heart-rending if they were exploited by a playwright. But though Mr. MacLeish seems to have selected a few such incidents their dramatic impact is not great.

Perhaps this is because we do not identify ourselves with J. B. the way we do, for example, with Archie Rice in "The Entertainer." In the latter play there was built up for us an anticipation of a soldier's return, and we know intimately the soldier's father as a real flesh-and-blood person. Thus, when the news is brought of the boy's death, the father's reaction electrifies us. But in "J.B." when the same thing happens within a brief episode and the soldier's mother cries, "He's dead, God has taken him," this acceptance of her misfortune seems neither touching nor revealing. Here one commences to wonder if Mr. MacLeish would not have done better to depart further from the Book of Job, as T. S. Eliot did in the plays he based on Greek dramas.

This brings us to the question of production, for "J.B." is packed with speeches and notions which could be made theatrical if one only found the right setting to mount them in. There are poetic revelations which sound good; interesting interconnections, such as the speech in which Nickles relates the injustice of Job's suffering to the injustice of Hiroshima's; and clever personalizations of such forces as psychiatry, Marxism, and dogmatic religion.

Elia Kazan has attacked his huge problem with an energetic realism. The down-to-earth director has encouraged Mr. MacLeish to revise his text. These revisions include 1) the elimination of some of the discursive dialogue, especially that between the two candy-butchers who gratuitously play God and the Devil; 2) the increasing of audience suspense, by the removal of lines which only remind it that there is no suspense; 3) the cutting of speeches which only restate what we have already seen happen; 4) the changing of the idea that animals do not suffer as humans do by substituting inanimate objects like the Moon and the sea for hawks and goats; 5) the manicuring of some of the speeches to remove some of the pretentious writing referred to in my review of last May (although one of the lines I mentioned in this regard was left in the script only to be pointed out by Kenneth Tynan, *The New Yorker*'s perceptive new critic, as an example of "pompously hollow" writing); and, 6) a rewriting of the last scene. Originally the play ended with J.B. claiming that the human

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condition in effect answers the rhetorical questions God put to Job. The revised version infers that God's questions to Job were unsatisfactory but that we answer ourselves by our willingness to "endure the loss of everything again . . . in doubt, in dread, in ignorance, unanswered, over and over with the dark before, the dark behind it and still live . . . still love."

Mr. Kazan has switched from Donald Oenslager's beautiful circus tent to a harsh realistic world in shambles designed by Boris Aaronson. At the beginning of the play some sloppy roustabouts methodically set up the stage with furniture with the same lack of relish one might expect from the poor in a city which has been bombed out many times. And when they finish they pull up a dirty worn-out canvas tent to indicate the pitiful meagerness of modern man's capacity for illusion and hope.

And, finally, Kazan has stimulated his actors so that each of them appears to have a burning conviction greater than the lines alone can justify. Raymond Massey plays Zuss as a man undergoing a religious conversion; Christopher Plummer as Nickles becomes as heated as Robert Ingersoll at the peak of his agnostic frenzies. The latter provides the funniest moment of the play with the dirty look he gives Zuss for his stentorian delivery of a religious sentiment.

In the title role, Pat Hingle has the stubborn belligerence of a Texas oil millionaire, and as his wife Nan Martin has the combination of deep quietness and powerful inner resources that one finds in pioneer women. Yet, though they speak with vigor and determination, we find it hard to follow their thought-processes as they come to philosophic terms with their misfortunes. This is not their fault; it is the play's. And let us interject here that the things that they have done under Mr. Kazan's direction have been successful insofar as they have overwhelmed the majority of the production's reviewers, to the extent that it is being touted as one of the very best plays of the American theatre.

However, this method of transfusing actors' personal vitality into the author's puppets makes "J.B." into a better play only by making it a different kind of play from the philosophic pageant it seems to be in the reading. The production raises us to a boiling point, where we feel prompted to inquire into such things as the reason for J.B.'s abject faith in God, and even into God's reaction to the modern world. And because Mr. MacLeish has not drawn J.B. and God as specific characters this inquiry leads nowhere.

As an admirer of both Mr. MacLeish and Mr. Kazan, I can only lament my inability to be dramatically moved by their superior, cosmic-sized work.

"THE Power and the Glory" comes up against some of the same problems that "J.B." does. But because Denis Cannan's and Pierre Bost's adaptation of the Graham Greene novel teems with real people we find their reactions to adversity paradoxical, suspenseful, and dramatic. This odyssey of a "bad" priest who believes suffering in this world to be the prerequisite for ecstacy in the next features Fritz Weaver in the leading role. And fortunately his compulsively febrile acting works better here than it did in "The Family Reunion." Stuart Vaughan's staging is not very subtle, but it is colorful and inventive.

S. N. BEHRMAN'S autobiographical "The Cold Wind and the Warm" seems to be most effective when it is radiating warm Jewish humor in the manner of "The Goldbergs," and least effective when it is suggesting the cold, sad tale of an intellectual's failure to come to terms with life.

In the warmer part of the proceedings, Maureen Stapleton as Aunt Ida, the matchmaker, exhibits her great talent for playing genuine comedy fully rather than just "broadly." Timmy Everett as the sensitive young Behrman, Sanford Meisner as an egotistical suitor, and Morris Carnovsky as a Talmudic scholar and impractical grocer present engrossing vignettes. Suzanne Pleshette appears much too pretty to play Leah, the unwanted girl from Fitchburg, and Eli Wallach much too good-natured and well-adjusted for the young intellectual, whose eventual suicide is never properly explained by the playwright. These two performers do have one moving scene together near the end, but this miscasting plus some unearthly lighting keep the evening from being fully satisfying. This is unfortunate, for "The Cold Wind and the Warm" has high quality.

ALEC COPPEL'S "The Gazebo" is an innocuous mystery-comedy which allows one the pleasure of planning the murder of an anonymous blackguard, and the thrill of just barely escaping apprehension for the crime by the police. It has one excellent scene in which Walter Slezak, dressed in a shower curtain and a miner's helmet, momentarily makes amateur murder an absurd charade. While the play rather deteriorates as it goes along, it is the sort of thing that may do for those who want to see an entertaining show and cannot get tickets to their first and second choices.

—HENRY HEWES.

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SR GOES TO THE MOVIES

Some Come Stumbling

HOLLYWOOD has seldom dealt with the life of the writer in America, and perhaps it is because Broadway, in the past season or two, has popularized the images of the embryonic and the angry young literary man that M-G-M has devoted two hours and twenty minutes of **"Some Came Running"** (adapted by John Patrick from the James Jones novel) to the adventures of a writer, portrayed by no less a personage than Frank Sinatra. A movie of this size and CinemaScope may well persuade some of our young people to drop what they are doing and take up the pen and typewriter instead, and it is rather a pity that Mr. Sinatra couldn't have set them a better example. True enough, he carries around portable editions of Hemingway, Wolfe, Faulkner, and Steinbeck wherever he goes, but he is never seen reading anything but the local papers, and as for pen and typewriter—he is never in their vicinity.

What Mr. Sinatra does do is consume numberless shots of rye whisky, play interminable hands of mean poker, and whoop it up with a moronic little lady called Ginny and a friend known as Bama Dillert, who also plays a mean game of poker (makes his living at it) and insists on wearing his hat all the time, presumably on the principle that a man's hat is his castle. Neophyte writers may get the notion from the movie's portrayal of the literary vocation that here is the way one learns about life and gathers the material for that great novel to come. Novels, of course, have been written about this kind of existence, but they generally aren't very readable and they all run pretty much to type.

Sinatra—"rye and a 300-page 'story.'"

Ignoring Thomas Wolfe's well-known admonition, Sinatra, as Dave Hirsh, goes home again, and for practically no reason at all runs into a peck of trouble. He has with him a manuscript of some 300 pages which he regards as unfinished and of no value, but a lingering doubt makes him show it to a lovely, young, virginal teacher of creative writing in the local Indiana college. While he waits outside, smoking a couple of cigarettes, she reads the "story" in the summer house of her estate (she is a very rich teacher of creative writing) and her eyes almost at once light up with the joy of literary discovery. She tells the whisky-drinking, poker-playing writer that she'll retype the "story" for him and send it off to the *Atlantic Monthly*. "I'm sure they'll accept it," she adds. Up till this point the girl (Martha Hyer) had been deftly avoiding Sinatra's highly crude passes, but now he sees his opportunity. He takes the hairpins, one by one, from her upswept blonde hairdo, passionately crushes her to him, and mercifully the screen dissolves on this literary note.

Even though the teacher of creative writing spends most of her time correcting creative manuscripts, she evidently has enough energy left to retype the story and send it off. Meanwhile, Sinatra, meeting chilly rebuffs to his attempts to renew his literary relationship, is off to Terre Haute with Bama and Ginny. A week or so later he returns to find the *Atlantic Monthly* out with his "story" (with no indications that any cuts have been made), also a letter of acceptance and a check for $500 from the same magazine. These tangible symbols of success he stuffs in his pocket unread, gets rebuffed once again by the teacher, then disconsolately reads the story to Ginny who, in the best scene in the picture, fails to understand it but loves him anyway. He proposes marriage to Ginny, is at once gratefully accepted and after an immediate wedding matters come to a quick, melodramatic head. Naturally Ginny gets shot by a jealous lover, and as everybody stands around her newly turned grave, Bama takes off his hat. God has won out.

Just what all these events mean is never made clear in the picture. However, Sinatra, Dean Martin as Bama, and Shirley MacLaine as Ginny all seem to believe in the story mightily, and Martin and Miss MacLaine are affecting at times. Martha Hyer is unfortunately stuck with the most ludicrous role, and I'm afraid ludicrousness is the effect she gives. Would-be writers should be warned, of course, that teachers of creative writing are seldom that pretty, and perhaps the *Atlantic Monthly* might be advised that some very lengthy manuscripts will be coming their way in the near future. The real blame for the far-fetched nature of the story should probably go to John Patrick and to Vincente Minnelli (who directed), since they both ought to have known better. The producer was Sol. C. Siegel, but I am inclined to let him off the hook. Producers aren't supposed to know anything about literary matters.

—HOLLIS ALPERT.

Your Literary I. Q.

Conducted by John T. Winterich

CATALOGUE FOR A SPACE-STATION LIBRARY

Here is a preliminary list of appropriate books to be microfilmed for the library of the first manned satellite or spacestation. All are works of the imagination—not a scientific text among them. After all, scientists have to relax *sometime*. Mary S. Bryan of Ibiza, Balearics, Spain, asks you to assign the proper author to each of these lunar titles. Answers on page 32.

1. "The First Men in the Moon" ( ) H. E. Bates
2. "The Man Who Sold the Moon" ( ) Lady Gregory
3. "The Moon and Sixpence" ( ) Robert Heinlein
4. "A Moon for the Misbegotten" ( ) N. C. Hunter
5. "The Rising of the Moon" ( ) Jack London
6. "The Sleepless Moon" ( ) W. Somerset Maugham
7. "South Moon Under" ( ) P. H. Newby
8. "The Valley of the Moon" ( ) Eugene O'Neill
9. "Waters of the Moon" ( ) Marjorie Kinnan Rawlings
10. "The Young May Moon" ( ) H. G. Wells

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MUSIC TO MY EARS

"Job" by Dallapiccola—Bernstein's Bach

WHEN the Juilliard School of Music scheduled a production of Luigi Dallapiccola's "Job" many months ago it had no way of knowing that its occurrence in December would coincide with Archibald MacLeish's verse drama on the same subject. Even less could it anticipate that it would be presented to an audience including critics with opinions but no place to publish them. Compared with Job's, these afflictions are minor ones, but it reminded any who needed it that fortune and misfortune may be as near together as the next breath.

Dallapiccola's work of 1950 is titled "una sacre reppresentazione," with a text from "The Book of Job" performed in an English version of unidentified authorship. There is no action to speak of, save as Job's trials are represented by the rags under the finery he discards, with much of the "drama" conveyed by the comments of choral groups representing "God" and "Satan." Dallapiccola's scoring is ingenious and expert, but it rarely communicates any personal flavor. Whether or not it utilizes the twelve-tone system or a variant of it seems to me less important than whether or not it utilizes any musical system to a really expressive end.

From where I was sitting, this did not seem to be the case. The qualification is more than a matter of phraseology, for under the balcony (the "where" of my seat) the pronouncements of the chorus were altogether unintelligible. At every moment, however, I could hear very well the text of Job excellently sung by Jerome Ieller, a baritone (presumably young) who gave every indication of a brilliant future.

By far the most interesting aspect of the performance was the imaginative production of Tseng-Yu-ho, a native of Peking who now makes her home in Honolulu. A painter (also identified as Mrs. Gustav Ecke), she has evolved a system of scrims and projections which made Job's Uz a colorful, inviting place, while revealing or concealing the choral groups by lighting alone. The illusion of activity thus provided was more absorbing than any in Dallapiccola's unconvincingly intellectual score. Frederick Prausnitz directed a musical rendering above the best level to be expected from sub-professional talent.

Those who may be curious about the sonata recital in which Guiomar Novaes was to make a rare appearance in such repertory with violinist Joseph Fuchs at the Grace Rainey Rogers auditorium of the Metropolitan Museum of Art on the same evening may abate their regret for failing to attend. Mme. Novaes was unable to perform, and her place was taken by Beveridge Webster.

ON PAPER, the program of Bach arranged by Leonard Bernstein for the last Philharmonic concert in Carnegie Hall prior to the Christmas interval was full of promise: Maria Stader as soprano soloist in "Jauchzet Gott in allen Landen," Rosalyn Tureck as piano soloist in two clavier concertos (D minor and G minor), and the "Magnificat," with Miss Stader joined by Jan Peerce, Russell Oberlin, Florence Kopleff, and Norman Farrow. Here was homogeneity and variety, taking diverse form from the many-faceted genius of Bach.

It did not come out that way, however. Between Bernstein's direction of the vocal works, Miss Tureck had the better part of an hour for herself, shaping the string ensemble of thirty or so to her desires. For much of this time, it was literally "for herself," the strings being subordinated much of the way to the status of background. Miss Tureck has a secure status as a serious artist, and can be exonerated of vanity: this misguided idea of proper balance doubtless derives from some overly scholarly interpretation of Bach's intent. Miss Tureck has earned the right to her opinions (which are as much as one can have about works so lacking in performing directions), but they struck me as dogmatic and unenlivening. A harsh piano sound, slow tempi for the allegros, and a generally four-square rhythmic statement contradicted the underlying musical sense of Miss Tureck's contrapuntal interplay.

The Bernstein-Bach was more active, even electric, though the current tended to be alternating rather than direct. Bach's fast movements tempt Bernstein to overemphasis, a perilous burden for a singer with the vocal purity (and limited power) of Miss Stader. This was particularly the case in "Jauchzet Gott," whose obbligato instrument is the trumpet. It was well played by William Vacchiano, but not shaded (as it should have been) to the size of the singer's sound by Bernstein. It sounded better via radio on Saturday night than it had previously in the hall, a circumstance related to her closeness to the microphone and Vacchiano's distance. The "Magnificat" pounded to its conclusion impressively, but not always sensitively. The implications of the bass's "Quia facit" (well phrased by Farrow) was quite lost in the jaunty tempo set by the conductor.

NATHAN MILSTEIN and the Beethoven violin concerto may not have yet arrived in every music lover's mind as an identity, but there have been few better performances recently than the one he gave in Carnegie Hall with Eugene Ormandy and the Philadelphia Orchestra in a program wholly devoted to this composer's music. Not so fervent as Kreisler's in his later prime, it is more surely controlled; not so piercingly probing as Szigeti's, it is much better sounding; not so immune to error as Heifetz's, it has a broader line—and so on.

Taken together, it was a superlative example of instrumental mastery and musical comprehension, with never a thoughtless note and few wayward ones. He missed a harmonic early in the first movement and there was a whistle for a tone in the slow movement, but these were scarcely mentionable lapses in a lustrous sequence of sounds that projected thought and emotion as well as surface beauty. The cadenzas (including a fragmentary one between movements two and three) were the player's own, reasonably brief and to the point.

In addition to providing an immaculate if rather weighty treatment of the orchestral score, Ormandy put himself and the orchestra at the disposal of the "Leonore No. 1" overture and the Second Symphony. Indeed, there was almost too much orchestra at their disposal, for eight basses of the Philadelphia quality tend to pull the fantasy of this symphony downward. It was heated rather than mercurial, and the less of itself therefore. The climax to which all of the "Leonore No. 1" gravitates was beautifully controlled. —IRVING KOLODIN.

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BOOKED FOR TRAVEL

Number One Unter den Linden

BERLIN.

IN THE great opening day crowd that swirled through the marble halls of the new Hilton Hotel, just a few blocks from the East zone of this divided city, moved an ample lady with red-hued hair, a devastating wit, and more memories about the salad days of Berlin than anyone else in the house. She had sat at the knee of the builder of the Adlon, and had heard its tales of grand dukes, grand dames, grand murders, and grand espionage. For twenty years she had lived inside its panelled walls and seen it all for herself. She was Frau Hedda Adlon, widow of Louis Adlon, managing director of one of the most famous hotels the world has ever known.

Frau Adlon, and the sad wreck of the Adlon just inside the Brandenburg Gate in the Soviet zone, are about all that are left of the grandest of the grand hotels, build at the express request of Kaiser Wilhelm II. "I'm on one corner," the Kaiser had said, "and on the other I want a fine hotel." The site the Kaiser had in mind was the Pariserplatz, just inside the Brandenburg Gate at Number One Unter den Linden. Unfortunately, it was occupied by the palace of the Count of Redern, which was something of a national monument. At the Kaiser's intercedence the palace came down and the hotel went up. It took Lorenz Adlon, Louis's father, three years, all his capital, and all his credit to create the kind of place the Kaiser had in mind. The carpets had come from Constantinople, the furniture had been fashioned of Australian mahogany, the chimney pieces were of Siena marble, but there was nary a bell in the house. In the Adlon the help was to be summoned by silent light flashes.

Said Kaiser Wilhelm, who came that October day in 1907 to open the hotel personally, "Do you note the modesty of our friend Adlon? The nameplates are no bigger than my hand."

Friend Adlon had plenty of experience in subdued elegance. A self-made man from Mainz-am-Rhein, he ran the Röte Terrassen in the famed Berlin Zoo, the only place where Prussian officers were permitted to display themselves while in uniform. He owned the Mille Colonnes restaurant in Amsterdam, operated the German restaurants in the World's Exhibition there. Said his daughter-in-law, reminiscing the other day over a brandy in the gold-papered bar of the new Berlin Hilton, "My old secretary is still living. She's in an old lady's home. When I go out to see her she sometimes talks about the times at the Röte Terrassen. At the end of each day, she told me, she had to count these twenty-mark gold pieces. Gold foxes they used to call them. There were sacks and sacks."

It took many a sack to build the Adlon, which in 1907 cost 20 million gold marks. The place was long since established when Hedda Adlon appeared one day in the Twenties. "I was a widow and not bad looking. I had lived for many years in America, but one Christmas I came back to see my parents, who had a home at Neufahrland on the outskirts of Berlin. I found them all in bed with influenza, so I checked in at the Adlon. On New Year's Eve I met Louis Adlon, the son of the owner. I never went back to America until years later when we went back married."

Hedda and Louis Adlon ran the hotel from that day in 1922 until 1945, when the end came. In the intervening years the hotel greeted everybody, especially Americans—Teddy Roosevelt, Franklin Roosevelt, Mary Pickford, Doris Duke, Herbert Hoover, Sumner Welles. It was such a favorite with Americans that some people in the States called it "America House Unter den Linden."

"It wasn't modern, no," says Frau Adlon today. "You just took a big gasp. You felt warm. You felt *gemütlich*." Although it had its days, when it flew the swastika alongside the Berlin bear, Hitler rarely came. "There were too many diplomatic and foreign people. Ambassadors lived there. Hitler didn't feel easy in the place. The carpets were too high for him. He preferred the Kaiserhof. It was an old-fashioned building and strangely enough it was 200 per cent Jewish-owned."

At the Adlon Thursday night was gala night, with tango bands imported from the Argentine. There were costume balls in winter with ladies gowned in 400-mark dresses. Sundays were for Berliners. "I see where they are having a *Fest im Schloss* at the Hilton. We had *Fest im Schloss*, but everybody had to come the way people dressed in the days of the old *Schloss*. One was the Duke of Aragon, another the Infanta of Spain. It doesn't mean anything the way they do it today with people dressed down to the navel. I have to have another cognac or I get sick."

The good days ended for sure when the last of the Adlon's American friends left for home at the outbreak of war. Then the bombs came and the old Habel Hotel, the Bristol, and Hitler's Kaiserhof disappeared. The Adlon survived it all, survived even the Battle of Berlin, the entry of the Russian troops. It was still standing the day the Armistice was signed, but that night the Adlon, which had outlived two wars, went up in flames.

Hedda and Louis had fled to the family house at Neufahrland where long years before Hedda had found her parents ill of influenza and had gone to stay at the Adlon. The first

Louis Adlon at the prewar Adlon—with Gerhart Hauptmann and Mistinguette.

Hedda Adlon at the postwar Hilton—"If it wasn't for this I'd be selling herring."

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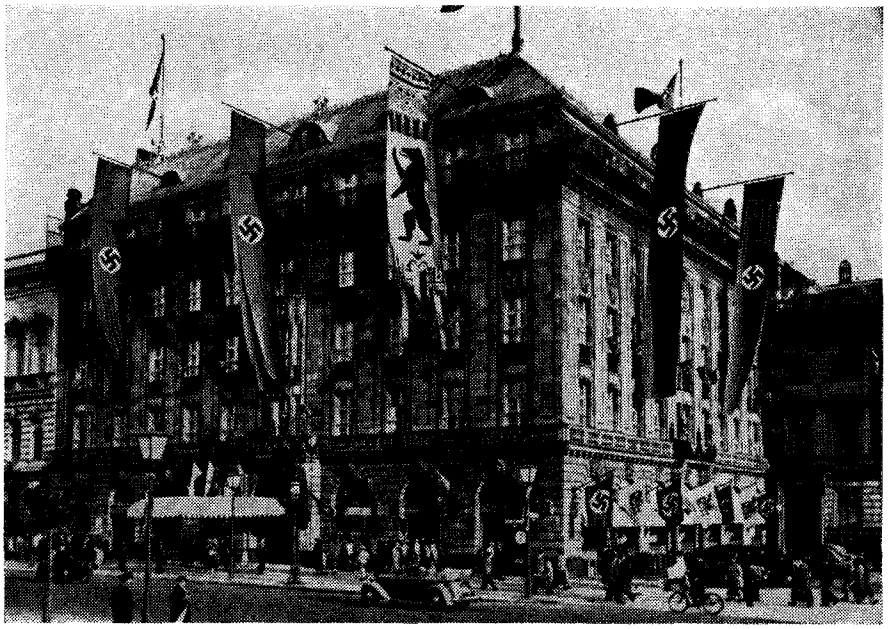
Russians came and went and so did the second wave. But the third heard a servant refer to Louis as the *"Generaldirektor,"* the managing director. They apparently thought he was a general and took him. For thirteen days Hedda followed his trail, and in a mound of earth which she scratched away with her hands she found him. She bought a sheet from an old lady and that was his shroud. From another who was building a hut she bought some wood and that was his coffin. But the grave turned out to be in the Russian Zone. Years later she bribed some workmen to dig old Louis up and bring him home to Berlin. "Then I bought him a linden tree. He liked so much the linden."

At Number One Unter den Linden the charred remains of the Adlon lay idle for three years. The steel was taken to be used in the Soviet showpiece, the Stalinallee, an avenue of apartments and shops in the East zone. A hundred rooms were fixed up in what was the old courier's wing. A messenger's waiting room on the entresol was made into a restaurant. The other day an undistinguished scattering of diners dipped into their soup in the shabby room while music from a speaker played "Begin the Beguine." In the dingy lobby downstairs there were still luggage stickers that said Adlon, and anyone who had an East German visa could stay there. Last summer some nostalgic Americans had done just that.

Says Frau Adlon, looking back on it all now, "It would have been better had I been a Jew. Believe me, I searched through all my family records. Not even a grandmother. All I could find was Catholics. I got nothing from the Adlon and I get nothing from it now. How do I live? I write books—"Hotel Adlon" by Hedda Adlon [London: Barrie Books, 21 shillings]. I didn't know where to get my *brötchen* (rolls). I became a writer. Schiller and Goethe? Nothing! Imagine starting to be a *Schriftsteller* at my age. Oh, there's no sensational stuff in there. No *Quatsch*. But the film people came to me and they made a movie. It ran weeks and weeks. I went to Hamburg with it and to Frankfurt. I couldn't get out of the theatre with six policemen. They tore me to shreds. I had a wonderful ermine coat. Now it's a scarf. In Frankfurt all the page boys dressed up in the Adlon uniform. A nice blue. They lined up. I'm not going to all the towns, I told them. I'm not a film diva. But if it wasn't for this I'd be selling herring or something."

Perhaps, if it hadn't been for the success of the book and the film Frau Adlon might have been persuaded to build again. "You must build a new hotel," the city fathers told her. "You belong to Berlin." So she walked all over the ruins, her feet clad in ski *Stiefel* (ski boots). But, says Hedda Adlon, "My heart lives Unter den Linden. I don't belong to the Kurfürstendamm. I don't belong to the Tausendstrasse. I don't build a hotel next to a *Spielcasino*, or a *Bierstube*, or a *Kaufhaus*.

"If I build again I will wait for reunification—my, isn't that a word!—and I'll go back to the Adlon. Our blood and our heart lies with the Adlon. It's not just to build a hotel and see how much money you can get from it. Oh, it's a different time. It's a different time." —HORACE SUTTON.



The Adlon under the Nazis—for Hitler the carpets were too high.

VÁMANOS: Fanciers of the professional wit of H. Allen Smith, as well as those who like to read about Mexico, will enjoy his latest collection of anecdotes, impressions of places and people, lunatic and otherwise, in **"The Pig in the Barber Shop"** (Little, Brown, $3.95). Mr. Smith's devotion to Mexico came upon him once when, passing through Taxco, he felt the need for a haircut. A peripatetic pig, feeling the need for adventure, wandered into the establishment. The frenetic expulsion of the pig elicited from Mr. Smith the following reaction: *"Por Dios,"* he is said to have exclaimed, "I think I'll come back and see a lot more."

The list of the 105 characters which begin the book are all necessary to the author's "inside joke," for at times he writes in the manner of a society columnist addressing himself to the initiates. (Some of the less obscure characters: "Tepoztecatl, an oddball deity," "Diego Rivera, who painted nice.") Mr. Smith has an exceptional talent for unearthing the ludicrous, and his reportage is interesting and colorful. Some of his characterizations are extremely funny, but we were not exactly tied up in knots by the anecdotes of well-know expatriates of Broadway and Hollywood.

. . . AND FAMILY: There is a certain *genre* of travel book which is predicated on the implacable innocence of the American abroad and which still considers him an irresistible subject for comedy. Moreover, let the American go abroad with spouse and offspring in tow and the result is usually considered more in the realm of high hilarity. A profusion of domestic errors, irregular verbs, outwitted customs officials, and wine-drinking children has recently come in for its full share of literary treatment with three new books. The first, bearing the inspired title of **"Mention My Name in Mombasa"** (Dodd, Mead, $3.50) is by Maureen and William McGivern, and relates the authors' experiences with their two children as they traveled through Spain, where they kept their headquarters, North Africa, Europe, and Iceland. **"Cornflakes and Beaujolais"** (Holt, $3.75) is written by a young Fulbright lecturer, Paul Roberts, who went with his wife and three young ones to Egypt to teach. The bazaars and domestic life in Cairo account for most of the narrative. Heather Jiménez, the author of **"I Wouldn't Want to Live There"** (Dutton, $3.50), has written a vivacious and amusing book. Mrs. Jiménez was married to a Spaniard whose work took them to Europe, Mexico, Lebanon, and Brazil, and somewhat later, two daughters come into the story to enliven the series of mishaps and adventures. —JEANNETTE WAKIN.

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On a Train, the Twain

***"Elephant Hill," by Robin White** (Harper. 245 pp. $3.50), which was awarded the 1959 Harper Prize for fiction, tells of an American schoolteacher whose visit to India is complicated by a local feud. SR's reviewer, Nancy Wilson Ross, who has traveled extensively in India, is the author of "The Left Hand Is the Dreamer" and "The Return of Lady Brace."*

By Nancy Wilson Ross

TO ANYONE who believes, as this reviewer does, that there is no more important task today than building a bridge of sounder understanding between East and West, it is reassuring to find the Harper Prize awarded to a novel which deals with a small but subtle episode in Indian-American relations. "Elephant Hill" tells the story of a first visit to India by Beth Sumner, an American schoolteacher on her sabbatical.

The novel begins with a typical scene of utmost confusion at a railway station during which Beth Sumner is exasperatingly and expertly underserviced and overcharged by her porters. She is traveling third class, not entirely to save money, though she has little, but also because she finds it more "interesting." As the train pulls out, an Indian gentleman, unable to make it because of delay at his ticket window, grabs onto the rear car and tries vainly to board it. Dumbfounded at the passive disinterest in his desperate plight shown by her Indian fellow-travelers, Miss Sumner, in spite of the intense heat and her exhausted state, manages to hoist the man to safety. Although he is traveling on a first-class ticket, Mr. Alagarsami settles down with his savior in the third—after overcoming his first acute, but grateful, embarrassment. They find they are bound for the same destination and are soon able to establish a companionable exchange—that is until she tells him that she is on her way to stay with her sister and brother-in-law who are American missionaries. Then Mr. Alagarsami's manner abruptly alters. When they disembark he darts off before she can present him to her relatives, and without any repetition of his original hospitable offer to show her the local sights.

It does not take Beth Sumner long to discover the reasons for his odd behavior. Mr. Alagarsami, a widower, is the father of a child born out of wedlock whom the missionary Westmores have legally adopted some years ago and whom they now love as dearly as their own two. Being without an heir, Mr. Alagarsami has been trying to recover the child, Mutthu, and has gone so far as to erect a barricade, for nuisance's sake, before the mission compound on land which he unfortunately owns. He is also threatening the Westmores with court action and the worried missionaries have found their Christian charity taxed to the breaking point. Although Beth Sumner quite clearly sees their side of the problem, she cannot rid herself of her first favorable impression of Mr. Alagarsami and she sets out in a fumbling way to bring the two warring halves into some kind of amity.

How the inept altruism of Miss Sumner and Mr. Alagarsami's resolution of a long-enduring and acute domestic dilemma vis-à-vis a powerful old uncle and a tyrannical matriarch finally bear hopeful fruit is the story Robin White tells in simple, direct prose. Mr. White was born in an Indian hill station of missionary parents and he has drawn his Indian characters sympathetically and well—though one could wish for more fulness in the background material. In "Elephant Hill" the high point of the drama comes as a result of a clandestine visit by Miss Sumner and Mr. Alagarsami to nearby caves, an occurrence which sets the community on its ear since the two get lost and return after dark. Here this reader could not help recalling the fateful visit of Dr. Aziz and Adele Quested to the Marabar Caves in E. M. Forster's "A Passage to India." Perhaps this was an association deliberately established by Mr. White, a way of indicating possible changes in Indian-Western relations, given a similar dramatic situation. The ending of Robin White's novel, though an "open" one, is open on the hopeful side, and this is brought about without offending the reader's sense of fitness or plausibility. After recalling Mr. Forster's great classic one cannot help expressing the hope that Mr. White, with his knowledge of India and his gift for characterization, will soon turn his talents to a work of larger dimension than this slight, though agreeably presented, episode.

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Rebel Raider

***"Seek Out and Destroy," by James D. Horan** (Crown. 302 pp. $3.95), is a sea story of espionage and intrigue surrounding a Confederate raider that harassed the Union coast. It is reviewed by Harnett T. Kane, who is the author of many books about the Civil War, including "The Smiling Rebel" and "The Gallant Mrs. Stonewall."*

By Harnett T. Kane

WHATEVER the reader may think of James Horan's method of telling it, there is a lively story here, and it is the story which carries the book. This is, in general outline, the tale of the Confederate raider *Shenandoah*, a vessel which proved a scourge of Union shipping, seizing vessel after vessel as prizes, capturing prisoners over a range of thousands of miles, and otherwise making the Federal forces fret.

Mr. Horan, who has written variously of Civil War subjects, Western and detective exploits, has chosen to call the *Shenandoah* the *Lee*, and to use other invented devices and materials. He has combined another vessel, the ram 294, with the raider and he has his fictional ship enter waters in a way that the original *Shenandoah* never did.

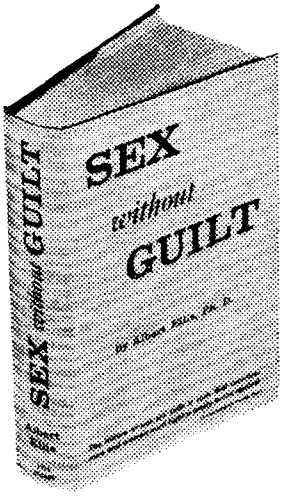
The author is also more at home in nonfiction than in the novel (this is his second work of fiction) and his yarn suffers from what might be termed an oversimplified, or overpanting, approach. The basic adventures of the *Shenandoah* seem more than good enough to tell without the exclamation points and figurative italics with which he has offered it. Yet enough of the story remains to give a certain clear interest—a yarn of intrigue, spying, mayhem, assorted crimes, and near-crimes. And, as Mr. Horan points out, the activities of the Confederate raiders, together with the clear Southern sympathies of certain British officials, brought a threat of diplomatic breaches with the United States and, now and then, perhaps of war.

In essence this is a man's book, involving double and triple dealings, espionage, and assorted operations. Its best moments are those of sea battles, of storms and swift attacks on the high seas, of marauding operations over several oceans, and also of mutinies. Kit Dunboyne, the Confederate ship's executive officer, is a provocative character, and his dealings have drama and suspense as he works in England to hide his secrets throughout the time that the raider is being built.

Mr. Horan has worked hard over documents. But the author would have been better served had he or his editors removed gauche dialogue like the love scene in which the lady whispers: "I love you very much," to which her husband replies: "And I, you." And while on page fifteen the writer describes his Lynwood plantation as standing on a hill "just ten miles from Baton Rouge," only four pages later in the book he locates it as "some twenty miles from Baton Rouge."

LAVENDER AND LACE: Lady L., a beautiful English aristocrat risen from the lower depths of Paris, a once handsome anarchist, formerly her lover, whom she has kept locked up in a trunk in a summer pavilion on her estate for half a century, a doddering and horrified old Poet Laureate, her admirer but no poet at all, to whom, at eighty, Lady L. tells the story of her life—these are the rather startling ingredients of Romain Gary's latest tale, **"Lady L."** (Simon & Schuster, $3.50).

The story is purportedly set against the cosmopolitan background of a dying age, when, at the end of the nineteenth century, blasé millionaire aristocrats, fiery-eyed anarchists and beautiful women mingled in the sophisticated spas and capitals of Europe. The reader can certainly not take the story any more seriously than does its author, who is so obviously deliberately fashioning a fantasy of bygone days as light as a sentimental ditty. And the reader may



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Lyle Stuart,

Dept. SR-8, 225 Lafayette Street, New York 12, N. Y.

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get a little tired of the deliberateness, of Lady L.'s artificial personality, her Ming vases and Vanbrugh house, her Tiepolos and flower gardens; tired too of the rococo oriental pavilion, which typifies her hidden, unsubdued self.

Hastily written, rather facile too, Lady L.'s story derives its charm from its baroque and refreshing unexpectedness. It makes good, light reading and seems slanted toward an eventual good, light movie. It cannot be compared with M. Gary's more significant novels, "European Education" (1945) and the recent Goncourt Prize-winner, "The Roots of Heaven" (1956).

—GERMAINE BRÉE.

PAST TENSE: Nevil Shute, who was most recently found peering ahead at Armageddon, now takes a backward glance at some of the carnage of the recent past. In **"The Rainbow and the Rose"** (Morrow, $3.95), he unreels several decades of a man's life by means of what might be called an extrasensory flashback. The man is Johnny Pascoe, a veteran flier who has crashed his small plane on a bleak stretch of the Tasmanian coast; in a bit of temporary transmigration, his past flashes before the eyes of Johnny Clarke, a younger pilot who has come to fly him out. While waiting for the weather to clear, Clarke spends the night in Pascoe's house, and during a Nembutal-induced nightmare, he relives Pascoe's troubled life. With a few intermissions for Ovaltine or a glass of milk, Clarke's empathic unconscious dogs Pascoe through an unhappy marriage to a musical comedy ingenue, a blighted romance with the wife of a resident in a home for the criminally insane, and a long career as pilot of everything from Spads to DC-6s. The most vivid interlude in this fantasy is a montage of a Royal Flying Corps tour in the open-cockpit fighter planes of World War I. ("Those rotary engines . . . the Le Rhones, the Monos, and the Clergets! They made a sort of crackling hiss, and always the same smell of castor oil spraying backwards down the fuselage. . . .") Mr. Shute projects this episode with such authority that the reader feels like pausing occasionally to wipe the mist off his goggles.

Some of "The Rainbow and the Rose" might sound a bit like a daytime serial if it were not for Mr. Shute's almost painfully deliberate style, which can sometimes be maddening, but which nevertheless lends a sturdy credibility to melodrama. Once one has accepted the author's unusual premise, his story engages the reader's attention to the bittersweet end.

—MARTIN LEVIN.

The Road to Berlin

Continued from page 20

crisis or in Taegu during the Korean War.

Similarly, East Berliners did not seem unduly apprehensive. It would be ridiculous to contend that the few people I spoke to represented a valid consensus. Even so, it was interesting that these East Berliners felt the crisis would work itself out, one way or another.

What about the feelings of East and West Berliners towards one another?

The most impressive thing about their attitude is that, despite the relative freedom of movement toward the two sectors, a surprisingly large number of people haven't crossed the line. This is reflected in the high degree of second-hand information that is retailed in each sector about the other.

To some extent, the measures taken by East Berlin to ban printed material from the West may account for some of the gaps in the knowledge of East Berliners, at least, about their neighbors. The only brush I had with East Berlin authorities came when our car was stopped at a sentry post near the airport serving East Berlin and our driver was reprimanded because he had permitted me to carry with me some West Berlin German newspapers and the European edition of *The New York Herald Tribune*.

When I asked several East Berliners why there should be such a large migration to West Berlin, the usual answer was that those who leave are mostly tax dodgers or people in tax trouble. It was added that there was no economic reason for them to leave; food was in good supply, prices were reasonable, rents were low, medical services were available at little or no cost, and jobs were to be had by all. In contrast, it was argued, housing was expensive and difficult to find in West Berlin and unemployment was widespread.

There seemed to be little ambiguity, however, in the replies to the same question when put to West Berliners. First of all, they said, there was enough movement of people out of West Berlin to West Germany to keep the unemployment problem from becoming too severe. Next, the lure of inexpensive housing wasn't too great in view of the fact that it was tied up with a system of political activity and rewards. Third, there wasn't too much enthusiasm about the kind of work that might be available. Most East Berliners have their "Soll," individual work quotas. In any event, one man told me with a smile, the incentives offered by East Germany are not quite irresistible.

Ten years ago I flew into Berlin at a time when the roads to Berlin from the West were blocked. I sat on a sack of coal in one of the hundreds of planes used in the airlift to keep the city going. As we approached Berlin I looked down on a city that still appeared as though it had been hit by the worst earthquake in human history. The landscape was covered by spilled brick and jagged fingers of stone.

In 1953, when I revisited the city, there was new life but still plenty of old rubble. Berlin was on the way up. Today, however, there is a shiny new city in Berlin, in many ways one of the newest in the world. Yet it is more than a city; it is a classroom in modern history and a laboratory in which many of the important but contrasting ideas about the making of tomorrow are being tested. But, ominously, Berlin could easily become the explosion center that could pulverize the cities of man all over the world. The Soviet Union has announced its willingness to risk a world nuclear war in the attempt to put an end to the blistering challenge of West Berlin. For West Berlin is more than a threat to East Berlin; it is a contrasting way of life inside a tight, specific, designed world that has no margin for a massive internal challenge. East Germany cannot indefinitely stand either the competition or the drain of its brains and manpower represented by the glittering magnet of West Berlin. And when East Germany is jeopardized, the Soviet Union becomes insecure and fearful.

The Soviet leaders dread more than anything else in the world the nightmare of an armed, united Germany. For they feel that German land imperialism has not been cured, neither in the First World War nor the Second. The Soviet Union would find intolerable a situation in which East Germany, whether because of possible economic or any other reason, would attempt to be reunited with West Germany.

On one point the Soviet leaders stand firm, however they may vacillate or give ground on other issues. This is on their determination to prevent Germany from again being developed into a war juggernaut that could roll against the East. Berlin represents the sharpest focus on this issue, the pivot and the crucible. Hence the Soviet's willingness to risk nuclear war now, whatever the consequences, rather than the certain ordeal of an aggressive Germany.

Yet for the United States and the West the issue is equally sharp. West Berlin is a mainspring and vital balance in the emotional and political defenses of Europe. The West has

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pledged itself to protecting the lives and interests of the people of West Berlin.

Moreover, West Berlin is linked as definitely to West Germany as East Berlin is to East Germany. And West Germany today is the strongest economic nation in all Europe. The North Atlantic Treaty Organization may have its directing center elsewhere, but its center of power is in West Germany. The Western thrust of Communism will have to pass through West Germany if it is to get anywhere.

Out of this impasse, one thing seems clear.

Any attempts at a workable solution should deal with the larger problem rather than with Berlin alone. It will be difficult to arrange the pieces unless we have some sense of the whole. The Soviet Union requires assurance that Germany will not represent a major military threat. The West requires assurance that the Soviet Union will stay within its boundaries and not use East Germany as an entering wedge into West Europe. Both requirements are legitimate. If there is any room for give-and-take in dealing with the present crisis, it will have to be along these larger lines.

So long as the Soviet is worried about the military potentialities of NATO with Germany as the springboard, and the West is worried about the roving power of the Soviet occupying armies in Central Europe, there is no genuine basis for resolving the Berlin crisis.

INEVITABLY, therefore, we are brought back to the fundamentals of peace-making. Peace was never really "made" at the end of the World War II. The situation was frozen on the basis of existing military positions. At some time, however, it will be necessary to approach the enduring problems of peace in terms of historical experience and the requirements of enforceable relationships among nations. That such an approach involves the need for an agency above governments—an agency enjoying the authority of world law—there can be no doubt. Nor is there any doubt that the governments themselves would resist the existence of such an agency, whether through the United Nations or any other.

Yet there is no reason why some nation or nations should not bring this issue before the entire world, dedicating itself to the proposition that peace is possible only through those ideas that serve peace, and that in the advocacy of such ideas there is both strength and the beginning of true security. —N. C.

Milestones

Continued from page 18

the relationships. Alone they make up an excellent and highly accurate history of science.

The work of each scientist in its turn is introduced with a brief biographical sketch, for science can never be divorced from the circumstances of the scientist's life. The sketches, like everything else in these volumes, are done with a scrupulous regard for facts and accuracy, and with a feeling, too, for the quirks and upsets that make the scientist alive and human.

"Moments of Discovery" is a book to place in your library along with the dictionary and encyclopedia.

A-Bomb Backstage

***"Brighter Than a Thousand Suns," by Robert Jungk** (Harcourt, Brace. 369 pp. $5), is a behind-the-scenes view of the participants who developed the A-bomb. The book is reviewed by Leonard Bertin, who is the author of "Atom Harvest."*

By Leonard Bertin

AFTER reading this exciting but at times melodramatic "personal history of the atomic scientists" one may be pardoned for wondering how the atom bomb ever remained one of the best-kept secrets of the war.

We learn of scientists—almost all of German or Central European origin and usually, so it would seem, students at one time in Goettingen—continually flitting across the U.S. to confer with colleagues about petitions, frequently directed at no lesser person than the President.

In the early stages these were in favor of developing the bomb. Later, they were petitioning against it. One gains the impression that this voluble section of the scientists had a strong obsession to save the world both ways—and also to remain in the official, if not the public, eye.

One cannot help feeling a profound sympathy for Mr. Roosevelt, confronted with a typically involved memorandum (quoted in full) by that lovable, but at times very rambling, monument of theoretical physics, Niels Bohr, and one has to admire General Groves—not always a likable individual—for the way he handled a difficult collection of people (wives in Los Alamos not forgotten).

The author has avoided describing what building the bomb involved and has concentrated instead on the personalities behind the scientific development. Clearly, he has gone to much trouble researching among the great quantity of material already written on the subject.

His own contribution has been in skimming this material and embellishing it with a wealth of reminiscence that is often superficial but always interesting.

At times, one feels, the excitement is almost too much for the author, as for instance, when Dr. Gregory Breit is wrestling with the supreme problem of the "global chain reaction."

"For a considerable time," we are told, "during which the whole burden of the earth and its inhabitants rested on the professor's narrow shoulders, he calculated and meditated day and night" before finally concluding that testing the H-bomb could not accidentally set the world on fire. Dispelling this doubt, surmises the author, must only have given rise to another.

> Now that he alone had eliminated the greatest obstacle of the future construction of the super-bomb, would he not share the responsibility if such bombs were used—not experimentally but deliberately and wantonly—to bring destruction on a planetary scale upon the world?

The professor may well have had his doubts, but he would have been naïve to imagine that no one else had them too.

The choice of Breit—himself a refugee at fifteen from Czarist pogroms—brings out an interesting point which the author, German by birth and writing originally for German readership, is keen to stress—the German contribution to the bomb. When asked to coordinate and direct feasibility studies on the uranium bomb, Breit, a professor picked up literally off a Washington sidewalk, protested that he had no administrative ability and "you could not hit on anyone less suitable for the work of coordination." He was apparently told: "We have not anyone else who is free to undertake the job and is an American citizen. Nearly all the physicists in the affair are foreigners."

Elsewhere we are left with the impression that, but for Hitlerite pogroms, Germany would have led the world in atomic energy, peaceful and warlike, and that only because of Hitler did Germany's refugees present the data to the U.S. Remembering that much of the impetus in the U.K. also came from refugee scientists, one must concede that there is substance at least in the second suggestion.

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Poetry Quarterly

Continued from page 14

tainly promises and partially reveals a new poetic personality. He comes forward with some exactnesses of contemporary scene plus classical allusiveness which give his uneven, not yet matured, verse a double-edged excitement. And that **"Riverside Poetry 3"** (Twayne. 147 pp. $3), an anthology of undergraduate poems, contains along with some frightful stuff some promising work—notably by Judith Banzer and John Murphy. (Say I; probably missing the incipient Keats as—as I said to begin with here—is our wont.)

There are a few books which, like the girl the whole village talked about, are "not really bad, but not what you'd call good, either." Jeremy Ingalls's **"The Woman from the Island"** (Regnery. 147 pp. $4.50) illustrates the fallacy of oratory as poetry. In language without nerves, dough-heavy, Miss Ingalls, entrapped in anthropology and philosophy, deals with SUBJECTS. And there are well-turned but basically unexciting poetic exercises in **"The Sum,"** by Alan Stephens (Alan Swallow. 47 pp. $2), and **"A Local Habitation,"** by Ellen Kay (Alan Swallow. 51 pp. $2), and John Edward Hardy's **"Certain Poems"** (Macmillan. 42 pp. $2.75). I don't claim these are indistinguishable, one from another; but all suffer the blight of academicism which afflicts so much contemporary verse. The genre raises magazine verse to a new intellectuality, but the result is still a tame substitute for the real thing. Without emotional subtlety such verse settles for correctness. It tends to give us not the thing seen but an image, thoughts about the thing seen. It relies greatly on acquaintance with literature, sometimes on imaginative wit without warmth. A craft is being practised which is basic to poetry but not to be taken as in itself the art of poetry. Then how does I. A. Richards escape all this? By taking himself—as Frost has advised—with inner humor and outer seriousness, or the other way round.

"Ovid: the Metamorphoses," a complete version by Horace Gregory (Viking. 461 pp. $7.50), is probably the solidest candidate for a new "event" in poetry I could advance. I shall not pose as a classicist able to judge a translation as such. It is best that I note that Robinson Jeffers and Dudley Fitts—who singly or between them must know all the Latin (and Greek) there is to know but who, on the record, might not be expected to agree about translation—have both given this version highest praise. I do know that no more finely modulated lines than Gregory's blank verse are to be found anywhere around these days. He has one of the subtlest ears in contemporary poetry, and it serves him well in this tremendous achievement. Those of us who have cherished Gregory's Catullus for a long while will be quick indeed to put this greater work alongside it.

There are many real poems, too, in **"An Anthology of Mexican Poetry"** (Indiana University Press. 213 pp. $3.50). Octavio Paz compiled it. There is a fine preface by C. M. Bowra. And the news is that all the translation is by Samuel Beckett—of "Waiting for Godot," etc., etc. I haven't the dimmest notion how "faithful" Beckett's translation is; all I know is the book is filled with lovely poems from the sixteenth century on, and that Juana de Asbaje and some others are exciting discoveries. The translations in **"Jean sans Terre,"** by Yvan Goll (Yoseloff. 190 pp. $5), are by various hands and of various merit. So many distinguished names, as translators and commentators, are involved in this book that I have no space even to list them. But the important point is that we at last have all together the poems in this remarkable sequence which I have long thought to be a touchstone not only of modern French but of all twentieth-century poetry. Finally, if you are in the mood for more Chinese verse—someone has gone away and hasn't returned and plum blossoms drift down the river; you know—there's a very pretty little book of it, **"Poems by Wang Wei,"** translated by Chang Yin-nan and Lewis C. Walmsley (Tuttle. 159 pp. $3). Wang Wei was eighth century.

Of prose books in the field of poetry, I want to call special attention to **"Stewards of Excellence,"** by A. Alvarez (Scribners. 191 pp. $3.50). It contains the soundest and best-written criticism of twentieth-century poetry I have ever read. Not that one agrees with it all. In the first place, Alvarez's notion that American poetry really begins with Eliot means that, caring little or nothing for the best of our nineteenth-century poets, he fails to grasp such poets as Cummings and Dr. Williams. In the second place, as to the key figures to whom his chapters are given, he does not erase my blind spot (if that is it) which covers the "importance" of William Empson—that king of the monsters—nor my conviction that D. H. Lawrence's poems, *per se*, are of secondary value. However, his discussion of Yeats, Eliot, Auden, Crane, Stevens, seems almost prophetically definitive. Here we have, certainly, a brilliant mind. Alvarez is a young London critic and I predict he will sometime loom large. After all, he can write.

Robert Pack has done a useful book on **"Wallace Stevens"** (Rutgers University Press. 202 pp. $4.50): a modest, clear exegesis on Stevens's poetry. It makes no sharp attempt to select the Stevens poems which can stand for all of Stevens's repetitious work, but the book is the sort of intelligent examination of Stevens's esthetics and practice which students will want to have. Less as critic, more as literary historian with an analytical eye, Horace Gregory in **"Amy Lowell"** (Nelson. 213 pp. $5) has brought back a somewhat terrifying lady and her gaudy era. It is a period piece from the time when verse was free.

With unintentionally insulting brevity, I have room—out of all the rest—merely to recommend three scholarly books, because these are sound in material and enjoyable in their writing: Maurice Valency's **"In Praise of Love"** (Macmillan. 319 pp. $6.50), which examines the troubadour tradition; **"The Idea of Poetry in France,"** by Margaret Gilman (Harvard University Press. 324 pp. $6), which charts French poetry from the trough of the eighteenth century to the heights of Baudelaire; **"Keats and the Dramatic Principle,"** by Bernice Slote (University of Nebraska Press. 229 pp. $4.50), a specialized but interesting study of Keats's talents as dramatist in poetry. In this at least like Keats, I make an awkward bow.

LITERARY I.Q. ANSWERS

Column 2 should read: 6, 5, 2, 9, 8, 3, 10, 4, 7, 1.

FRASER YOUNG'S LITERARY CRYPT NO. 811

A cryptogram is writing in cipher. Every letter is part of a code that remains constant throughout the puzzle. Answer No. 811 will be found in the next issue.

QRR STQUVW XY UZA

VBZCAT; QY QRR

DZEWDWUA XY UZA

NZBCQBK.

—WRRWU VRQYVZC.

Answer to Literary Crypt No. 810

An angry man opens his mouth and shuts his eyes.

—Cato.

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A Scientist Ponders

Continued from page 10

solid fortress of logical thinking, all is confusion. As practical tools, no one doubts the continuing value of the armaments. But in terms of ultimate and inner strength, the revelations are astounding indeed. The ultimate basis of both types of logical thinking is infected, at the very core, with imperfection.

Finally, I would argue that there is a different texture of finality to religious thought. Let me illustrate. I believe that fifty years ago essentially every well-trained scientist would have said that the principle of conservation of mass, and the principle of conservation of energy, were both perfect and doubtless unchangeable. Fifty (or 500 for that matter) years ago there were persons who believed that the basic principles of the Sermon on the Mount were perfect and unchangeable. Now the two scientific principles I have mentioned have been discarded. To be sure they have joined to form a broader new principle, but the fact remains that each, considered separately, simply is known today to be untrue. The newspapers of the past months have told us of the recent collapse of another scientific principle—that of parity. One confidently expects further really revolutionary changes in our present scientific conceptions of time, space, mass, continuity vs. discreetness, etc., which will simplify and unify the present almost intolerable confusion in modern atomic physics.

But although I hope that there will be ever deeper understanding, ever more realistic interpretation in modern-day terms, ever more clarifying light from all sectors of modern scholarship, I myself find it impossible to contemplate any fundamental change in or improvement on the basic principles of the teaching of Christ. Which, then, science or religion, has the harder inner core?

Sir Richard Gregory, until recently the distinguished editor of one of the world's leading scientific journals, *Nature*, has written his own epitaph. It begins:

> My grandfather preached the Gospel of Christ,
> My father preached the Gospel of Socialism,
> I preach the Gospel of Science.

On the contrary, I think that the day has already come when one may proudly say:

> I preach the Gospel of Science and the Gospel of Christ.

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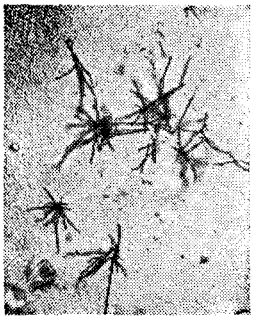

—*F. J. Higgins.*

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RESEARCH IN AMERICA

TAKING THE MIRACLE OUT OF THE MIRACLE DRUGS

PRESCRIPTION of antibiotics without a specific cause for such treatment has reached disturbing proportions. The practice has been discussed in medical journals, and some of the profession's discomfiture has leaked to a wider public. But no general, full disclosures have been made. I shall therefore begin by calling attention to a plainly worded censure published in the October 1958 issue of *Postgraduate Medicine*. Dr. C. Henry Kempe, professor of pediatrics and head of the department of pediatrics at the University of Colorado Medical School in Denver, couched the rebuke in language that might ordinarily be expected to be reserved for the instruction of healers from some bypassed culture.

"It is suggested," he wrote, "that (the physician) . . . formulate a tentative specific . . . diagnosis . . . *prior* to the administration (of an antibiotic) . . . and that he give such a drug only when (its effectiveness is) . . . indicated (by the diagnosis)."

In italicising the word *prior*, Dr. Kempe expressed an extraordinary need for emphasis. Why is such a pointed exhortation called for in these days when the rawest medical student is assumed to accept the primacy of accurate diagnosis? Dr. Kempe offered this explanation:

"All of us desire to get our patients well as quickly as possible and all of us desire to be completely up to date and therefore we are usually tempted to try everything new as fast as it comes along. . . . We quickly make . . . new antibiotics . . . useless to us by their overuse . . . as forms of better aspirin . . . in the treatment of fever . . . rather than what they truly are. We constantly assume that a drug is no good if the fever fails to drop promptly, and this leads to the quick addition of a second and a third antibiotic."

He plainly felt that many of his fellow physicians had forgot another beginner's lesson in medicine:

"Fever is only a symptom . . . a symptom of many diseases *other* than bacterial infections . . . a prominent symptom in viral respiratory infections which are insusceptible to antibiotic treatment at present."

The injunction was clear. Distinction must be drawn between those fevers which antibiotics unquestionably are effective in lowering (and in these, which tend to be the historic plagues of man—typhus, typhoid, meningitis, syphilis, gonorrhea, tularemia, brucellosis, bacterial endocarditis, pneumonia, tuberculosis, scarlet fever, intestinal disorders, and boils—the effect is miracle-like) and other fevers where antibiotics are not only useless but a potential danger.

An antibiotic is by definition a potion made by a living organism (like the one pictured at work on our masthead above) to kill or disable another living organism. This type of drug is useful principally against diseases caused by bacteria, germs, microscopic "bugs." Virus infections are susceptible in some cases: trachoma, "parrot fever," and the social disease known as *lymphogranulomia venereum*, for instance. Some diseases caused by the virus-like *rickettsia* (typhus, scrub typhus, Rocky Mountain spotted fever are examples) also respond to antibiotic treatment. But antibiotic prescriptions are an extravagant waste of money if they are directed against any of the commonly recognized virus ills, such as infantile paralysis, encephalitis, influenza, or the common cold.

By failing to distinguish between one fever and another before prescribing antibiotics, Dr. Kempe warned, physicians have confronted themselves with "the problem of no longer knowing the natural history of many diseases"—the changed environment of the originating organisms, their population distribution, their identifying characteristics. In short, doctors are in danger of forgetting how to tell common sicknesses apart. Should that happen, modern medicine would succumb to mumbo-jumbo.

There is time to avert castastrophe by reversing the trend. Until the prevailing carelessness is brought to an end, however, individual calamities can and will pile up as a result of indiscriminate antibiotic dosing. In summing up the situation in *Postgraduate Medicine*, Dr. Kempe listed five areas pregnant with the probability of tragedy.

First—and worst on his list was the masking of serious disease by ineffective medication. The real cause of an undiagnosed infection does not appear for five to ten days after the first visit to the doctor. It takes that long to decide that an antibiotic isn't working. During the interval of ignorance, the patient is getting no better and is probably getting worse. In absence of specific diagnosis, other alternatives may be presenting themselves, such as

Second—vomiting, nausea, diarrhea, anal itching due to poisoning;

Third—hypersensitivity to antibiotics, resulting in various forms of distress from outbreaks of hives to death in extreme cases;

Fourth—alteration of the normal balance of bacteria in the digestive system, bringing on dangerous complications, or;

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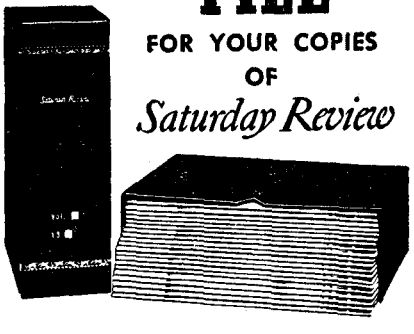

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Fifth—encouragement of growth of new dangerous strains of bacteria which are resistant to antibiotics.

THE particularly pernicious effect of this fifth alternative among patients in hospitals has been known to medicine for almost five years. At first, medical authorities discouraged writers from disseminating the facts on the grounds that people who needed hospital care would be frightened away. Since new-born babies were prominent in the lists of early victims, and since the old-fashioned services on which safety of home-delivery of infants once depended have disappeared, there was a genuine dilemma. As time passed and resistant strains of bacteria continued to flourish at the expense of their human hosts, however, it became clear that only the pressure of fully informed public opinion could bring about reforms. Somewhere in the neighborhood of 500 hospital epidemics occurred between 1954 and autumn of 1958. The worst one, in Texas, took twenty-two lives. By last September, U. S. Surgeon General Leroy E. Burney was ready to admit that drug-resistant strains of staphylococcus had become a menace of "national significance and growing magnitude." A million dollars of public health moneys were set aside for research into the problem. The American Hospital Association formally called upon its members to establish Committees on Infection to enforce controls of antibiotic use. Although no one said as much openly, regulations laid down by these committees leave no doubt that hospital staffs had been relying on the wonder drugs to free them from the drudgery and tedium required by old-fashioned boiling, steaming, and scrubbing. The introduction to a warning pamphlet circulated by the New York State Department of Health, for instance, concluded with this capital-lettered sentence: NO PATHOGEN HAS YET DEVELOPED RESISTANCE TO ASEPTIC TECHNIQUE. In simpler words: Antibiotics are no better substitute for cleanliness than they are a shortcut for diagnosis.

WHAT we are really involved with here is the necessity of learning to live with our environment. There is an outer environment and an inner environment. Overuse of antibiotics has been changing the inner environment just as surely as we alter the weather and our food-growing capacity along with the landscape when we denude the countryside of trees. The human respiratory and digestive tracts are considerably more than networks of tubes and tissues; they are the dwellings of many different kinds of bacteria, which live and work together in a marvelously contrived division of labor. Without them, what we eat would never get digested. When the delicate balance among them is disturbed, we suffer greater or less discomfort, depending on the extent of the disturbance and the immediate state of our body defenses.

The staphylococcus germs that are now playing hob in the hospitals have been with us at least since the days when they afflicted Job with boils. Ordinarily they cause little trouble because they have to compete with other bacteria for living space. As long as they are kept down, they in turn keep their competitors down and this is good for us. The purpose of the anti-"staph" cleanup is to restore the normal healthy balance of old—not to wipe out "staph."

"TO BACTERIALLY sterilize (a person) . . . is impossible," Dr. Kempe reminded the physicians he was addressing in the pages of *Postgraduate Medicine*. "It simply cannot be done. No matter how many antibiotics one gives, it is impossible to get rid of every bacterium. The more we give and the more we try to eliminate the bacteria, the more chance we provide for the one, two or five remaining ones to overgrow and become pathogenic (vicious), when, in the natural way of things they would not be pathogenic."

The overgrowth that Dr. Kempe cautions against is exactly what turned "staph" into such a dangerous enemy.

A growing segment of the medical profession is now struggling to correct a misleading notion it gave to patients generally about this whole matter by prescribing antibiotics as a blanket prophylaxis in the early days of antibiotic therapy. You didn't get an antibiotic to fight "flu"; you got it for the pneumonia germ that might cause secondary infection following the "flu" attack. Under special circumstances (which can be determined only by careful diagnosis) the possibility of rapidly fatal pneumonia might be sufficient to justify the precaution. There are a few reports in the medical literature favorable to a broader interpretation of successful prophylaxis against pneumonia in cases of "flu." The record runs heavily against the practice, however. Generally, nothing is lost by waiting to see whether pneumonia actually develops. The germ can't be killed before it appears. Antibiotics do not convey a systemic buildup, as, for instance, do vitamins. To kill a germ, they must be aimed like rifle bullets. Their use in shotgun-type

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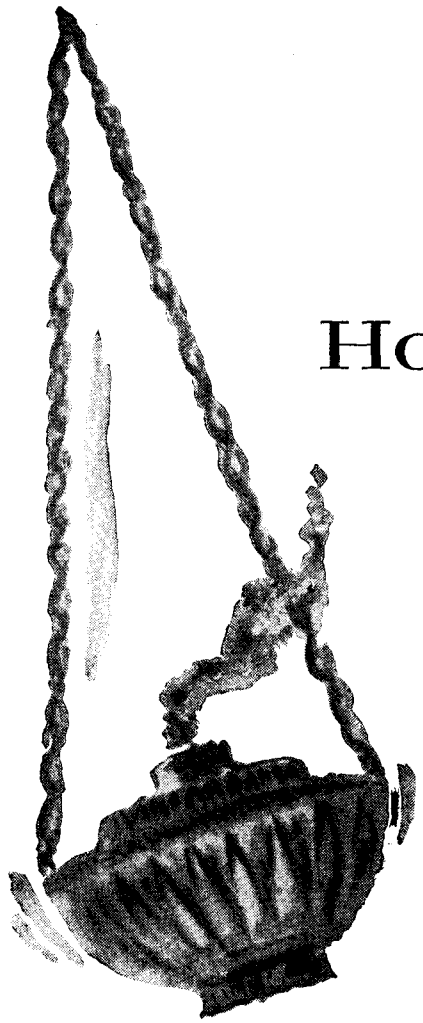
therapy is ludicrous. I have read of an extreme case where penicillin was administered to stave off "complications" in a sprained toe. The owner of the toe died. An autopsy was performed. The toe was dissected. Its tissue was normal in every respect.

ANTIBIOTIC prophylaxis in surgical cases is inevitably a fight against unidentified infection. It can't be identified because no surgeon can tell which of the company of bacteria disturbed by his knife may take the upper hand momentarily. Experience indicates that the preventive practice has its value in those instances where the region of operation either is frankly infected or very likely to be infected at the time the surgeon goes to work. Included in this category are open wounds due to violence, severe burns, shortening of the large bowel, and certain complex entries of the esophagus and lungs.

Ordinary surgery is a quite different matter. Here the record shows that prophylactic antibiotics do more harm than good. Dr. Kempe's study cited in this connection the results of 250 clean operations. Of these 250 cases, 154 did not receive antibiotic therapy. Among those 154, only 7.8 per cent developed bacterial aftermath. The remaining ninety-six patients in the test group of 250 cases all got prophylactic antibiotics. Bacterial complications arose in 37.5 per cent of the ninety-six cases *while they were receiving the antibiotics.* "In our own . . . experience," Dr. Kempe reported, "bacterial complications in clean operations are five times as high in prophylactically treated patients as they are in patients who are not given antibiotics prophylactically."

THOSE are the disturbing facts about antibiotic prescriptions. What can be done about them? Should the individual patient take the initiative and ask his doctor about it? He might perform a public service by doing so. There are several unusual circumstances in this particular situation that should make patients' interest welcome to physicians.

One of these circumstances is the prevalence of massive advertising pressure. Established ethical drug houses, traditionally cautious in advancing claims for their medicines, are being jostled and jolted competitively in antibiotic sales by the Madison Avenue "hard sell" of bulk chemical makers who have invaded the drug field with a great deal of money to spend and no comparable history of restraint in promotion of their wares. The contrast will be clearer if you keep in mind that lack of self-policing with-



How to save 77 years

The boy Galileo sat in the sanctuary of Pisa's great cathedral, observing the movement of a lamp which had been set swinging by a sudden gusty draft. The chain by which it was suspended from the high ceiling was of such a length that the arcs decreased but slowly. Strange thing, though. No matter how far the pendulum swung, its movement consumed the same time. Galileo made a note of that. The year was 1581.

The old man sat at his writing desk, sixty years and a thousand disputes later, writing down a new theory. The regularity of a swinging pendulum might be combined with a spring mechanism to improve the unreliable clocks of that day. So Galileo scribbled on, and did nothing more about it. A number of years after his death Huygens took the notes and invented the pendulum clock. *Seventy-seven years had elapsed since the boy made the observation upon which it was based!*

The creative thinker today still need not have a specific use in mind when, by equation or formula, he branches off from the accepted to the hitherto unknown. The classic invention of this decade, the transistor, evolved in the Bell Telephone Laboratories as scientists sought a deeper understanding of semiconductors. On the other hand, another great invention, the feedback amplifier, came from the acutely creative mind of one Bell engineer faced with a specific problem.

Current Bell Laboratories activities—in such areas as data transmission, radar and submarine cable development—call for the coordinated efforts of all types of thinkers and all types of approaches. One type complements another.

Today, seventy-seven years would not have elapsed between the swinging lamp and the swinging clock pendulum—certainly not at Bell Labs, where ideas, though not rushed, are carefully advanced toward fruitful application in national defense, industry and communications. An important part of this harvest is the efficiency of America's telephone service, unequalled anywhere else in the world.

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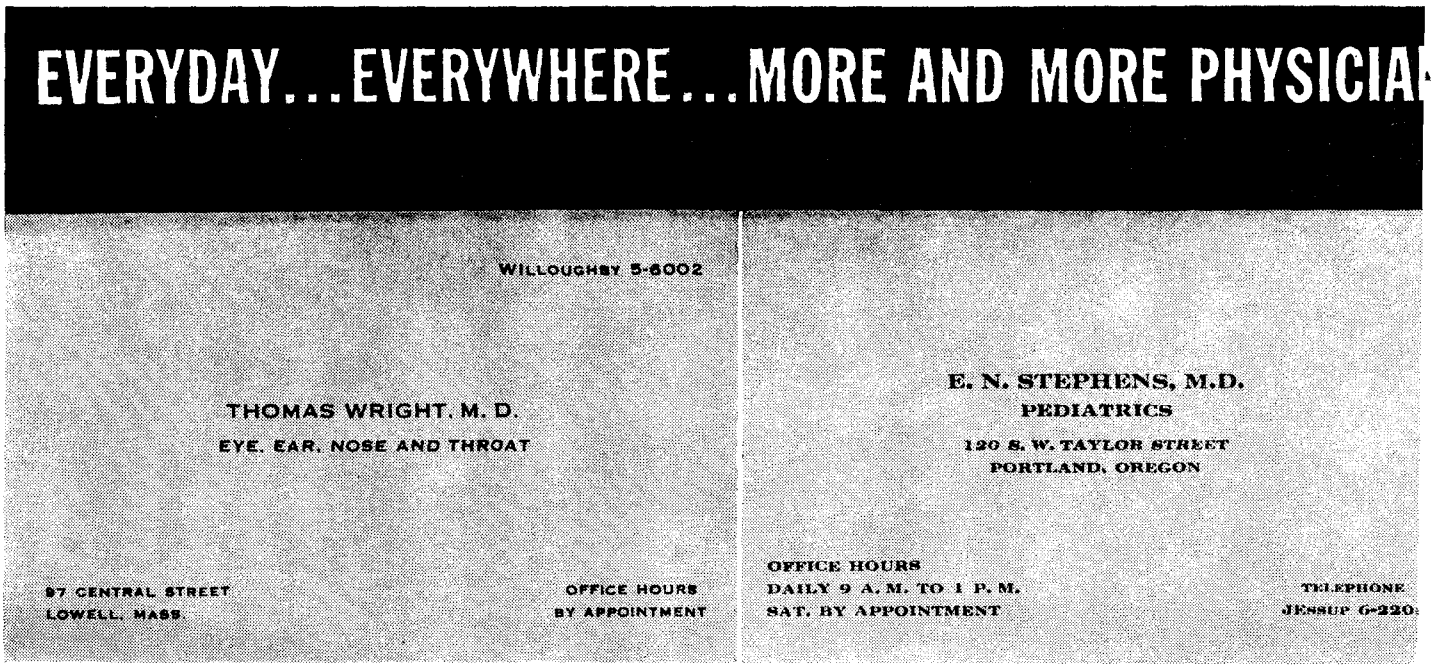

Above is reproduced a panel from a brochure advertising an antibiotic (Pfizer Laboratories). Its readers are invited to accept the

in the bulk chemical industry recently necessitated a new Federal law restricting chemical additives to food. Anyhow, the pressure of the chemical newcomers to the drug market has driven some of the old-line ethical houses off balance and put a shriller tone into some of their antibiotic advertising, too.

The consequence, as Dr. Kempe reported it in *Postgraduate Medicine*, is that "advertising claims made for each new antibacterial agent . . . are always unduly enthusiastic and sometimes misleading. The physician is constantly faced with free samples" and a "bewildering array of persuasive literature"; he must put up "a considerable degree of sales resistance to undue or premature advertising claims," particularly in regard to "fixed combinations of two, three, four or five antibiotics." "At lease sixty-nine preparations" of this type are being touted in "commercial exploitation of the physician's fear regarding the emergence of resistance (to one antibiotic, which theoretically could be fought by a different antibiotic in the combination) or doubt of his own diagnostic capabilities." But the truth is that "in many instances" these multiple drugs "reflect the competitive nature of the drug business rather than . . . therapeutic . . . need." They are "sometimes dangerous . . . , particularly undesirable" in treating children.

The New England Journal of Medicine, loudest thunderer for medical integrity in America today, has been blasting away at excesses in antibiotic advertising for at least a year. Repeatedly exhorting its doctor-readers not to "readily fall prey to the psychological warfare embodied in the high-powered technics of modern sales promotion," the *Journal* took pains to spell out how the claims are built up. "Some manufacturers," it declared, "are inclined to incorporate products in which they have a proprietary interest (or at least in which their competitors have not) rather than products that are the best available but in which they do not have such interests." Antihistamines, adrenocortical steroids, and vitamins are thrown into the antibiotic mixtures in response to "pressure . . . brought to bear on the management (of the drug houses) by the sales force to provide some combination to meet effective competition."

THE sales force, in this context, does not include "detail men" the drug houses send to doctors' offices to follow up the ads. The "detail men" are generally honest in giving whatever information they possess. More often than not, however, their employers withhold unfavorable information from them. This peculiarity of drug marketing was brought out in a special article that Dr. Joseph Garland, the *New England Journal's* editor, published last July. The piece was written by Dr. Solomon Garb, associate professor of pharmacology at Albany Medical College of Union University. It described an experimental teaching project incorporated into the sophomore class curriculum at Albany Medical College in 1957.

The project was designed to acquaint medical students with drug advertising evaluations they would have to make after they became doctors. The students were given an opportunity to determine whether the content of drug ads fairly reflects the real usefulness and the real dangers of the drugs advertised.

It was a voluntary study. Roughly half the class took part in it. Each of the volunteers picked at random one drug ad that had come in the ordinary mail of a member of the Albany Medical teaching staff. The assignment required each student to learn all he could about that one drug and then to decide how honest the ad for the drug had been.

The class as a whole ended the project convinced that drug makers try to exaggerate the value of their medicines at least half the time. Almost three quarters of the students believed that exaggeration occurred in eight to ten cases out of ten, and that undesirable qualities were minimized just about as often. In many instances the drug manufacturers ignored requests for detailed documentation of their advertising claims, or responded to the queries by sending another copy of the same ad. Only a few drug houses came through with what an idealistic young doctor would expect, and the names of those few grew to be such imposing symbols of reliability that the class decided it would be safer to prescribe drugs by their trade names instead of by the standard nomenclature given in the *U. S. Pharmacopoeia*.

The medical students' disillusionment did not end with the ads that came through the mail. They were equally shocked by the ads they read in medical journals. Seventy-five per cent of the class felt that journal ads did not give enough information about the drugs, especially not cau-

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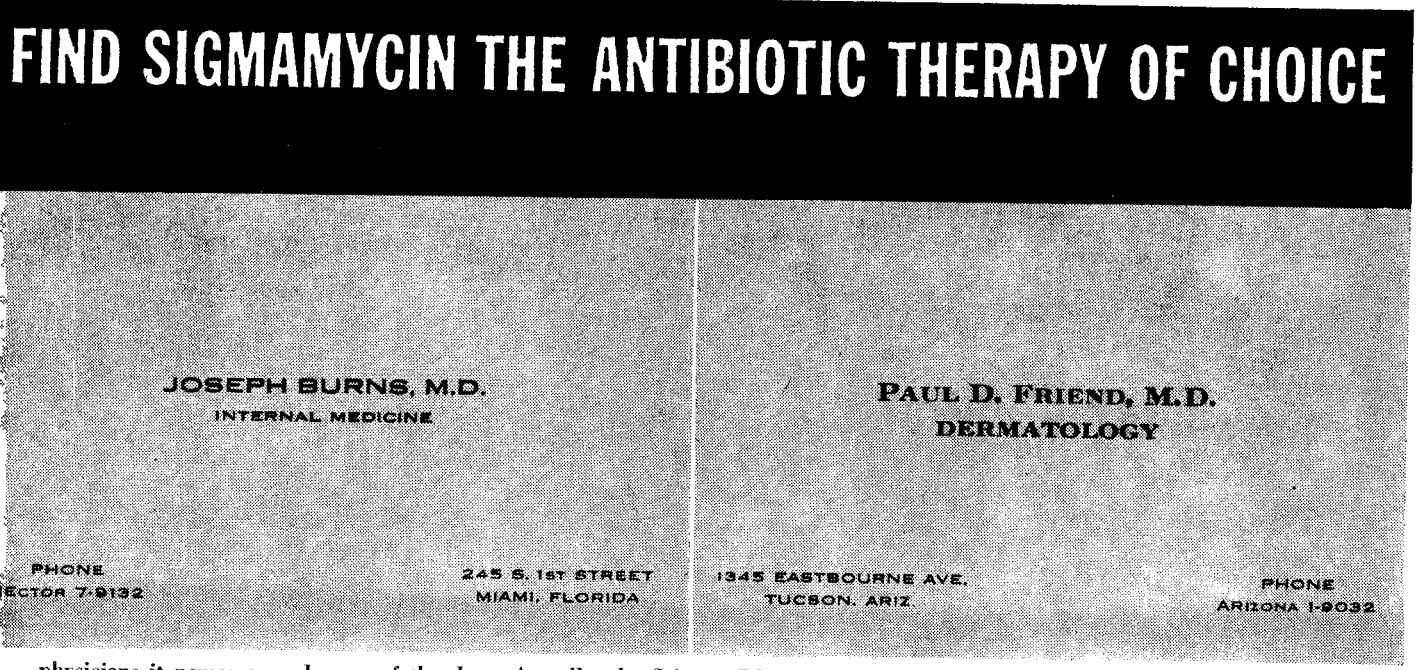

physicians it names as endorsers of the drug. Actually, the Science Editor of SR has discovered not one of these physicians exist.

tionary information. One student was downright insulted by the guff he felt expected to swallow. He wrote:

"The ads I have seen directed to chemists or to engineers in their professional journals in no way approach the use of, shall we say 'color' in medical journal ads. This seems to indicate that Madison Avenue considers the medical man about as prone to their blatant claims in drugs as a woman is to an ad on a deodorant, while other professional men are not in the same category. They might be right."

The students discovered that certain companies put new drugs on the market before reporting any clinical studies of those drugs. In several instances the ads announced that clinical studies were in progress and would be described later. This reminded one physician-to-be of Alice in Wonderland—the verdict first, after that the trial.

On the editorial page of the issue of *The New England Journal of Medicine* in which the Albany Medical experiment was described, *Journal* editor Garland concurred in the medical students' criticism of ads in medical publications like his own.

"Some medical journals seem to accept advertising with little question of the merits of the product," he wrote, "and frequently the advertisement does not contain enough information to enable any reasonable check on the claims. Often new drugs are advertised before any informational articles have appeared in reputable journals or have even been accepted for publication.

"Almost universally there is a toning down or at times a complete lack of information concerning toxicity and adequate precautions to be followed in the use of drugs."

* * *

The Case of the Invisible Physicians

ANOTHER and distinct problem, aside from whether the ads accurately present the qualities of the antibiotics, is the pure use of advertising pressure. Because excessive pressure which could lead a doctor to premature prescription of what might later prove to be even a superior medicine is a public danger. Following is an example of excessive pressure I have come across in the course of my work as Science Editor of the *Saturday Review*.

The ad in this case was a brochure bearing the name of Pfizer Laboratories, a division of Charles Pfizer and Co., Inc. The brochure told physicians who received it through the mail that they now had available to them "the antibiotic formulation with the greatest potential value and the least probable risk . . . *highly effective—clinically proved* new, multispectrum synergistically strengthened Sigmamycin particularly for the 90% of the patient population treated in home or office where sensitivity testing may not be practical."

A banner of bold type across the top of the ad read: "Every day . . . everywhere . . . more and more physicians find Sigmamycin the antibiotic therapy of choice." Beneath the banner were strung what appeared to be reproductions of the professional cards of eight physicians scattered across the country. The cards were complete in every detail down to office hours and telephone numbers (see examples on this and facing page). The names, specialties and addresses were given as follows: Thomas Wright, M.D., Eye, Ear, Nose, and Throat, 97 Central Street, Lowell, Mass.; E. N. Stephens, M.D., Pediatrics, 120 S.W. Taylor Street, Portland, Ore.; Joseph Burns, M.D., Internal Medicine, 245 South 1st Street, Miami, Fla.; Paul D. Friend, M.D., Dermatology, 1345 Eastbourne Avenue, Tucson, Ariz.; John Turner, M.D., Surgery, 85 Oakwood Avenue, Los Angeles, Calif.; Arthur Granger, M.D., Gastroenterology, 315 N.W. 15th Street, Philadelphia, Pa.; W. A. Porter, M.D., Urology, 4421 State Street, Evanston, Ill.; Richard R. Jones, M.D., General Practice, 132 East 59th Street, New York, N.Y. Though one purpose of the reproduction of these cards undoubtedly was to show the versatility of the drug, readers of the ad could hardly avoid considering the named doctors as witnesses to the efficacy of this antibiotic.

The staff of SR/Research has tried to reach each of the eight individuals named. Telephone calls have been made, telegrams have been sent, and the following letter has been written:

> "Dear Dr. ————:
>
> "If you have published any of your clinical experiences with Sigmamycin, I would appreciate your sending me the reference or preferably a reprint, if available.
>
> "Sincerely yours,
>
> ————."

The telephone operators have reported all of the phone numbers to

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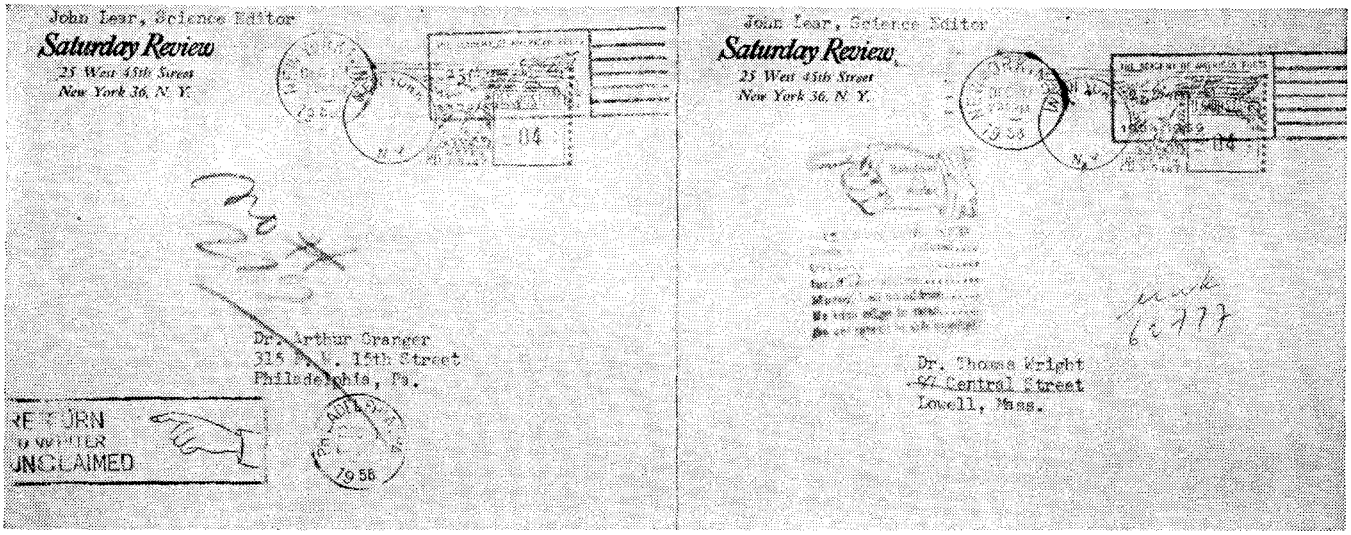

Letters addressed to the supposed owners of name cards in the antibiotic ad on last two pages were returned unclaimed; above are two.

be false numbers, Western Union has reported inability to find such persons, and seven of the eight letters had been returned unclaimed by the Post Office at the time this page went to press. Four of the envelopes are reproduced on this and the next page.

I suppose that if the manufacturer in whose name the ad was circulated were taken into court and asked to explain, he would argue that the ad did not say the namecards were actual reproductions or that either the names or addresses were authentic. And he would be right.

I don't know how the law would weigh his case. But I do know that the Pharmaceutical Manufacturers' Association — formed last spring through merger of two older groups, The American Drug Manufacturers Association and the American Pharmaceutical Manufacturers Association —adopted and publicized a statement of principles for ethical drug advertising which includes this sentence: "Every effort must be made to avoid ambiguity and implied endorsement."

* * *

OF COURSE, nothing said by an advertiser relieves the individual physician of responsibility for checking before he uses the drugs the ads promote. But can a busy doctor find time to check all the names in all the ads when his office mail sometimes brings him one piece of advertising literature *every day for ninety consecutive days heralding a single drug?*

If you are by this time boiling inwardly against the hazards that antibiotic ads placed in the path of your own and your family's wellbeing, cool down and simmer awhile on the doctor's behalf. He, pursued soul, has often suffered worse punishment than he has allowed to pass to you. The antibiotic samples rained on his desk have sometimes been used in "advance" treatment of his own children, with serious consequences. Two-thirds of the deaths that have occurred from blood aberrations due to one antibiotic occurred in doctors' families. At least one deaf daughter is described in the medical literature as a victim of therapy-by-advertising-sample and it can reasonably be assumed that there are many more and greater tragedies.

It is in this area of responsibility for error that the interest of patients can help doctors most. Medicine today has a keener consciousness of danger from damage suits than at any time in my memory. Professional journals recently have been occupied with the legal implications of patient dissatisfaction. And, so far as antibiotics are concerned, the direction of possible suits is shifting. In the early days of these "wonder" medicines, the assumption was that complaint would be more likely if a prescription were withheld or delayed. This helped to create the atmosphere of indiscriminate dosing which now prevails. Under cover of that atmosphere a record of unfortunate results of poor or no diagnosis has accumulated to the point where future patient protest will almost certainly be against the prescribing of antibiotics where they are not really required.

It may be argued that a patient is supposed to have complete faith in his doctor and that if the doctor is so harassed by the drug ads, he should follow the advice Professor Garb drew from the experiences of his students at Albany Medical College: "that the physician . . . instruct . . . his nurse or receptionist to throw all advertisements except first class mail into the wastebasket unopened." Such a view is entirely reasonable. But it leaves out of consideration what Boris Pasternak's heroine in "Dr. Zhivago" says was the real beginning of Russian Communism—the fashion of not believing in the integrity of one's own opinions—the popularity of substituting "the glittering phrase." When patients took the glittering phrases about antibiotics from the newspapers and the pocket magazines and carried them demandingly to doctors' offices, the doctors accommodatingly prescribed these newest of the "wonder" drugs. Here was a plain abdication of responsibility. In appraising the delinquency, however, each patient must answer the question: If he had asked his doctor for an antibiotic and the doctor had refused to prescribe one, would the patient have accepted that decision or tried to get the drug from another doctor?

IT MAY surprise you, as it surprised me, to know how much the doctor must rely on the good will of his patients. As the experiment of the Albany Medical students indicates, he has nowhere to turn for quick, dependable advice on the true performance of new drugs. The ads begin to bombard him (and sometimes his patients) six months or more in advance of a judgement from the American Medical Association.

Why aren't ads for new drugs banned until the AMA drug council has time to appraise them? I have discovered no satisfactory explanation. Perhaps it's because the facts haven't been known well enough to stir up public indignation. The most likely explanation I have heard is that drug sponsors thwarted by strict policing have on one or two occasions filed damage suits against

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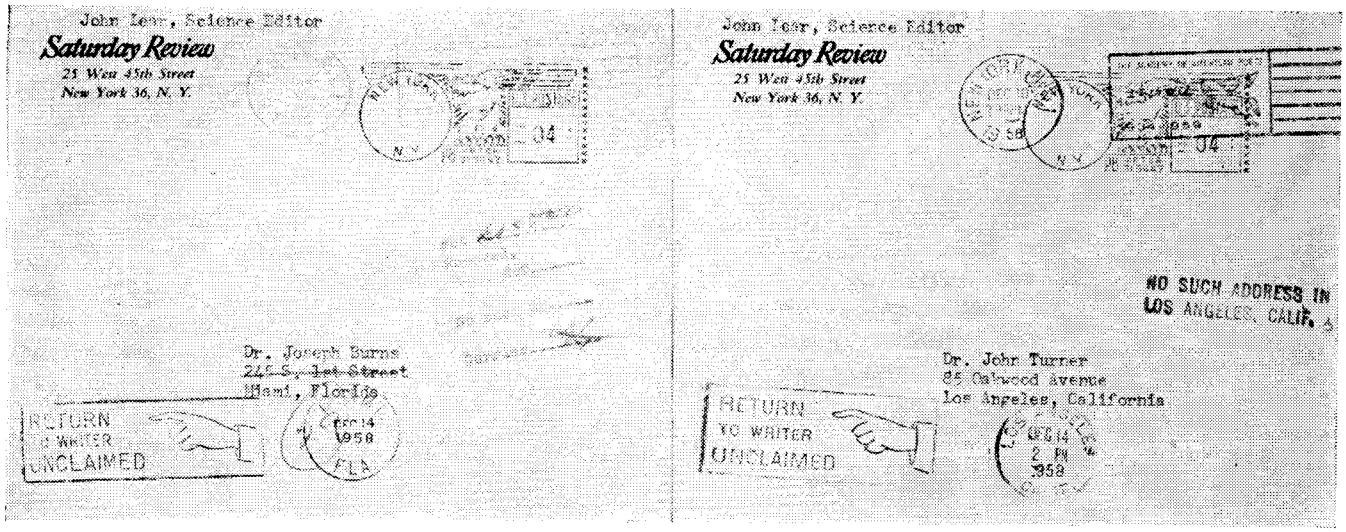

Here are two more of the eight letters mailed to supposed endorsers of drug and returned by the Post Office to *SR*'s Science Editor.

medical journals which refused the offending ads.

A MOVE is now on foot to set up an independent medical agency to appraise new drugs for doctors willing to pay for the service. The fee won't be prohibitive if enough doctors subscribe. Conservative drug houses recognize that some reform is in order. By filing full reports of clinical trials of their new drugs, they would put a silent squeeze on the high pressure. Those manufacturers who didn't report would be in the position of selling unlisted products—drugs the doctors would be reluctant to buy. If this approach doesn't work—or even if it does—the United States Congress certainly can put the burden of proof on drug makers just as it has put the burden on manufacturers of chemical additives to food.

A patient's intelligent concern, intelligently expressed, can sharpen the role of diagnosis in a doctor's mind. Dr. Kempe noted in *Postgraduate Medicine* that "it is becoming increasingly popular for physicians in general practice and pediatrics to do their own bacteriologic examination in their own offices. It is now possible to purchase sterile media (plates of germ-food on which the germs will grow if they are present) by mail at a . . . cost of less than fifty cents a plate . . . (from) Hyland Laboratories . . . (and) simple egg incubators . . . (to keep the media warm while the germs grow) . . . costing less than $50 . . . (can be bought from) . . . Montgomery Ward or Sears Roebuck and Company." Growth of this practice may have a salutary effect in speeding the work of hospital labs, which have the advantage of being able to assess epidemic patterns in the community.

Under what conditions a doctor prescribes antibiotics is a valid, simple question to which a patient can fairly expect a simple, straightforward answer. *What* diagnosis the doctor makes is a subtler question which involves sensitivities affecting the mutual confidence vital to a successful doctor-patient relationship. And there may be times when, because of symptoms that are common to several different diseases, he must await developments and perhaps prescribe antibiotics as a precautionary measure in the meanwhile. Beyond a mild demurrer to prophylactic prescriptions, there is not too much a patient can say without risking misunderstanding. The readiness of a person's body to accept antibiotic therapy should, of course, be established as clearly as possible. Anyone who is asthmatic, or afflicted with allergies of any kind, should make that known if the doctor isn't already aware of it, because there is a good chance of allergy to antibiotics. Resistance to penicillin is a special problem; thousands of people unknowingly subject themselves to the risk by drinking penicillin in the milk they buy—it comes from cows that are being treated for bovine infection; the U. S. Food and Drug Administration is trying to work out a dye that will discolor such milk and thus end its saleability, but this protection has not yet been achieved nor is there any law to prevent farmers from marketing such milk. Anyhow, if a doctor knows that a patient is sensitive to antibiotics he will be in better position to judge which is the greater threat to health—the infection that could be stopped by an antibiotic or the reaction the antibiotic could bring.

Enough has been said about combinations of antibiotics up to this point in my report to leave no doubt that packaged combinations in general are suspect, despite the favorable propaganda you see everywhere. The world dean of antibiotic therapists, Dr. Maxwell Finland, of Harvard Medical School and Boston City Hospital, has stated in a symposium on the subject that "I know . . . in practice . . . only three diseases . . . in which combined antibiotics have proved really useful." The three are tuberculosis (where streptomycin and PAS, or isoniazid and paraminosalicylic acid, are used together), subacute bacterial endocarditis (where streptomycin and penicillin together apparently work greater effect than either alone), and brucellosis (where one of the tetracyclines is added to streptomycin). "There are some antibiotics, however, which have a known tendency to produce resistance, mostly in staphylococci but in some instances in other . . . organisms," Dr. Finland adds; "these drugs should not be used alone." They are streptomycin, erythromycin, and novobiocin. But even after these are included, it is Dr. Finland's opinion that "*any* and *every* combination that comes . . . in a package may be a vicious distortion of the best use of medicine."

SO IT is the individual doctor's personal responsibility to formulate himself whatever combination in whatever amounts he thinks is required, if any combination is required, for the particular care of a given patient. He should have every encouragement to do exactly that. As Dr. Kempe wrote in concluding his findings in *Postgraduate Medicine*:

"Happily, medicine remains a highly individualized vocation. What is more fitting, therefore, than that each of us (physicians) should work out his own therapeutic philosophy? It is our hope that this philosophy will be at once enlightened and responsible."

—JOHN LEAR,
Science Editor.

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Repeatedly since June 1956, SR/*Research has pleaded for appropriate recognition of science as a force in American foreign policy. Twelve months ago we had the pleasure of reporting the designation of Dr. Wallace R. Brode as Science Adviser to Secretary of State John Foster Dulles. Last month the State Department finally named aides for him abroad—Science Attaches in the Embassies of London, Paris, Rome, Bonn, Stockholm and Tokyo—the first Science Attaches to be assigned in two years. Why the delay? Adviser Brode blamed elaborate security clearance procedures. Old State hands put the onus on his inexperience at liaison. Seemingly science has something to learn from diplomacy as well as vice versa. We hope the two will get to know each other better before the really ticklish science jobs are filled in Moscow, New Delhi and South America. Full understanding, however, can come only with time. Graham Du Shane, editor of* Science, *official journal of the American Association for the Advancement of Science, has published an editorial proposing a way to gain the time. We reprint it as an expression of our own belief that statesmanship is as worthy a goal for a scientist as are laboratory experiments.*

CAREER SCIENTIST-DIPLOMATS?

They Could Work a Permanent Influence on Foreign Policy

By GRAHAM Du SHANE

THE appointment of Science Officers to serve at several of our embassies prompts us to take another look at the role of science in the Department of State. The revival of the science office, which began nearly a year ago with the appointment of Wallace R. Brode as Science Adviser to the Secretary of State, indicated that the Department recognized the need for a mechanism to ensure that scientific factors would be taken into account in decisions affecting foreign policy and that contact between foreign and American scientists needed to be facilitated.

The general pattern for the organization of the Science Adviser's Office is now clear. At the base is a Washington staff of which the principal officers, in addition to Brode, are as follows: Deputy Science Adviser L. H. Farinholt, who was formerly professor of chemistry and director of the chemical laboratories at Columbia University and science attaché in London in 1954; Assistant Science Adviser Mary E. Corning, physical chemist, who was formerly with the National Bureau of Standards; Raymond L. Zwemer, zoologist, who was for three years chief of the Division of International Cooperation for Scientific Research at UNESCO in Paris; and Assistant to the Science Adviser Walter M. Rudolph, who has been in the science program since its beginnings in 1947.

The Science Officers (who appear to be equivalent to the attachés under the earlier program) will serve for two years and will be backed up by Deputy Science Officers, who will serve similar but overlapping terms to provide for continuity. These officers will be assigned only to certain major and centrally located countries, but they will be expected to keep abreast of developments that bear on foreign policy in neighboring countries. Provision is being made for carrying out similar functions in countries beyond the purview of the Science Officers by the designation of foreign service officers, who have the requisite familiarity with science, to cooperate with the science office.

THIS is the formal structure. How it will work in practice will depend less upon its table of organization than upon a number of unspecified and informal relations. However favorable the predisposition of the old-line foreign service officers may be to the newly appointed Science Officers, the latter will still have to work out their precise role in the embassies and gain an accepted place. So also, the Science Adviser's office will have to maintain and improve its working relations with such other branches within the Department as the International Cooperation Administration and the Technical Cooperation Administration and with outside agencies such as the National Science Foundation, the National Academy-National Research Council, and the Killian Committee.

THE new office has its work cut out for it. Not the least of its tasks will be that of avoiding the gradual attrition that afflicted its predecessor, an attrition which was the more readily brought about by the short-term appointments of scientists; when their terms came to an end, no successors were appointed. The new office has a greater assurance of continuity in that its Washington base is permanently staffed, but the Science Officers are still vulnerable by virtue of their limited terms of appointment. Perhaps the best remedy is to establish career appointments for at least some of the Science Officers, who would thus become scientist-diplomats. A permanent cadre of this kind would give greater continuity of experience and increase the chances that the work would be maintained when the political winds blow cold.

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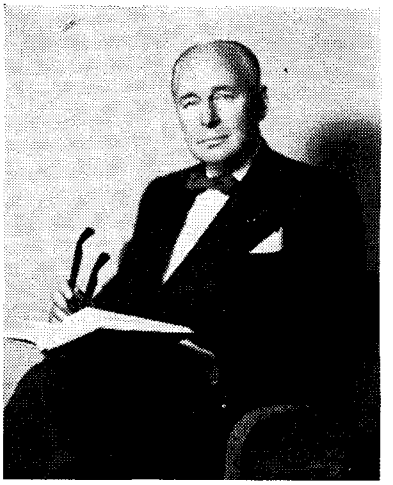
PERSONALITY PORTRAIT—XXXIV



—Blackstone Studios.

MARS OR THE PRESIDENCY: A SCIENCE CHOICE FOR 1969

Lloyd Berkner, America's Top Exponent of the International Traditions of Science, Could End Up in Either Place

IF THE first Earthmen to reach Mars find Martian men waiting to greet them, a great many earthly scientists will be surprised. But no scientist who really knows his way around this planet will think it even passing strange if the Martian greeters ask, "Where's Lloyd Berkner?"

Everyone knows Lloyd Berkner—the "inventor" of the International Geophysical Year. That is taken for granted and is beside the point. To other-worldly folk his fascination would be that of a scientific phenomenon. Has he extra perceptions? How does he manage to live what other men dream?

While his confreres talk of the scientist as our last reasonable hope of learning to live in peace, Lloyd Viel Berkner acts to express that hope in everyday events.

Martian men to him would be just another group of people to learn to understand and get along with. That attitude he shares with others. What sets him apart is his initial assumption that understanding is not only possible but a natural function. Interplanetary space is, after all, a measurable extension of the distance between his office, at 10 Columbus Circle overlooking New York's Central Park, and the Long Island Blue Point oyster coast where the running of Brookhaven National Laboratory requires him to get along with the decision makers of the nine Associated Universities he works for—Princeton, Harvard, Yale, Columbia, Cornell, MIT, Pennsylvania, Johns Hopkins and Rochester. And if that jump in behaviorial patterns seems too vast for easy belief, he can fill the gap between with all sorts of examples of the peaceful and happy co-existence of forty-three nations—in the International Council of Scientific Unions.

When professional diplomats trouble themselves to examine the words and methods by which supposedly undiplomatic citizens arrive at agreements that last, there must be something present above and beyond the fine print. If anyone can identify the something, it ought to be Berkner. Because the ICSU pacts of the last three years, the years of his presidency of the world-spanning organization, are now being scrutinized by experts in the State Department and in Foreign Offices of other lands. In fact, the attention currently being paid to these ICSU documents is so great that they have been put together into a special pamphlet for quick reading and reference.

Berkner's own choice of the decisive ingredient is good faith. The scientists of ICSU don't begin their deliberations by offering reservations they intend to abandon later to win bargains. They say what they want, they make real concessions in return for real concessions, and the whole atmosphere is warmed psychologically by the process.

Berkner is impatient with social scientists who theorize about what might happen or how we ought to behave under stress of disagreement. He thinks study should focus on how we actually do behave, what really has happened in specific instances, and what steps experience suggests would be reasonable steps toward altering the present-day environment of international suspicion.

AT THE time he first proposed the IGY, for instance, few people honestly believed there could be much true cooperation between Moscow and Washington. The liaison by which the IGY proceeded through the eighteen months that ended with December 31 was far from flawless. Nevertheless, a relationship did exist, it has survived and it is now being extended through three permanent avenues of scientific exploration: one in the Antarctic, one on the sea bottoms, one in the depths of interplanetary space.

WHAT kind of human brings such things about? Lloyd Berkner is definitely a male animal, tall, broad-shouldered, with a fine-clipped head, a sturdy unpadded frame, and (the fact that a young woman said this is a high compliment to his fifty-two years) "the vigor of six oxen." His wife (nee Lillian Fulks), serves as supporting member of a rugged partnership. She almost died in line of duty last year, in a motorcar accident en route from home in New Rochelle to the site of a radio telescope Associated Universities is building with National Science Foundation funds in West Virginia. It was only family tradition that two daughters should try to be scientists, and only normal Berkner-ism that they should be forgiven for abandoning the attempt. In any event, three peripatetic researchers might have generated too much centrifugal force for the good of the clan. Mr. Berkner—he's one of the few prime movers in American science who is plain Mister; prime moving has occupied him too thoroughly to allow him time to get a Ph.D.—circulates enough himself for even a large family. His trips from New York to Washington (where he sits as a member of President Eisenhower's Science Advisory Committee and chief of the Space Science Board of the National Academy of Sciences) are too frequent to be classified in any other way than "commuting." His ICSU work often takes him abroad. When his lateral progress is impeded, he moves vertically; during a stay of several weeks in the Antarctic late last year, he took to the air for five hours every day.

Being so constantly on the go, how does he get done the multitude of things that must be done in fulfill-

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ment of his own designation of himself as a scientific administrator? The answer is discipline. He spends exactly the amount of time that he feels needs to be spent on any given question, and no more. Gifted with a fine lawyer's skill in drawing up briefs, he summarizes a situation succinctly—so succinctly that listeners who don't follow carefully word for word are lost. He delegates to subordinates the authority they require to carry on from there.

AN enormous concentration is mirrored in his achievements—a rare oneness unknown to those whose interests are disparate. His biographies say he has four hobbies: photography, metal-working, gardening, and golf. But none of his six secretaries has ever seen him set aside time to be occupied outside his work.

Berkner's whole career is an extension of the principle that man must continually evolve, consciously as well as genetically, to survive his environment. The environment of a 1959-model American includes 1959-model Russians and 1959-model Chinese. Berkner understands this. His ancestors did not have to contend with it. Their problem, as a northern people, was to keep moving to keep warm. Berkner himself was born in Milwaukee, and went to school in Perth, North Dakota, and Sleepy Eye, Minnesota, under the spell of the Northern Lights. Given the chemoelectric nature of the aurora, his development through half a century follows the genes that long ago adapted all Berkners to invigorating motion.

Aside from the flickering lights in the sky and the dips that occur in magnetic compasses, man's clearest evidence of the arrival of auroral particles in earth's atmosphere is sudden intrusion of noise in radio signals. One of Lloyd Berkner's boyhood interests was radio transmission. At 17, working a set he had made in high school, he broke a world record for speed in relaying messages between Hartford, Connecticut and Hawaii. Pursuing this excitement, he shipped as an RCA operator on the Latin American runs of merchant boats, returned to school at the University of Minnesota for a Bachelor Degree in Electrical Engineering, joined the Navy as an ordinary seaman in order to fly and conduct experiments from the air, and ended the apprentice phase of his life as the late Admiral Richard Byrd's signalman on the first plane flight over the South Pole.

HAVING mastered the practice of radio messaging, Berkner now began to examine more closely that part of his natural environment which made the messages possible. This was, of course, the ionosphere, the great spherical cloud of electrons surrounding earth. It had been discovered, shortly before, that the cloud existed in three layers, named "D", "E" and "F." By using radio messages as experimental tools, Berkner found that the "F" layer expanded like a lens as the day wore on, so that a top and bottom could be detected some distance apart when the sun was directly overhead. This discovery opened the way for radar techniques (which Berkner helped the Navy to perfect early in World War II) and later for the DEW (Distant Early Warning) line across the North American Arctic.

AFTER being decorated for distinction in action on the U.S.S. *Enterprise* at the Battle of Okinawa, Berkner ranked as a Naval Captain. His scientific eminence has since lifted him to Admiral in the Navy Reserve Corps. In 1946, as Executive Secretary of the Research and Development Board of the Defense Department, he organized the nation's scientific resources for Dr. Vannevar Bush under FDR's famous order "To Win the Peace." Secretary of State Dean Acheson then called him to work out the original military assistance scheme for NATO. The next year he headed a committee to study science in foreign policy and came up with proposals for science attaches in U.S. Embassies (see page 42.) By that time, Berkner had seen science pass, within the span of his own life, from the era of one-man discoveries (like his own regarding the "F" layer) to an age of enormously expensive instruments and intricate forms of cooperative research. He stepped from the old era into the new by accepting appointment as president of Associated Universities and thus top boss of Brookhaven's multi-million-dollar atom-exploring machines.

MAN'S knowledge of his earthly home has been limited up to now by his nearness to it. Further growth of scientific understanding can come only through a global perspective. That awareness led to Berkner's proposal of the IGY in 1950. His prescience has been borne out impressively by the unexpected facts already sent down by the first man-made moons.

Already Berkner is being suggested for the Nobel Peace Prize. What more can he aspire to? Well, if science keeps going as it is going now, and if the first earthmen reach Mars and find Martian men in 1969, the Martian question could be: "Did Berkner win in November?"

—ROBERT A. JONQUIL.

SCIENCE IN BOOKS

LIFE IS

Abundant

THE inhabitants of northern lands account for no more than a tiny fraction of the world's total of people, and their numbers, after considerable falls following the introduction of the white man's infectious diseases, now rise but slowly. The world's total population in 1957 was near 2,700 million, and it is an odd reflection that more than three-quarters of these live out their lives in less than a quarter of the world's habitable area.

Despite this crowding, the dwellers in highly cultivated and populous lands have no realization of the natural abundance of life. They see the trees, the grass, the fields of golden corn and root crops with their shiny leaves, but do not think of these as life. These grow but do not move until the wind shakes them in its passing. It is movement that to most men is the epitome of life, the galloping of horses, the flight of birds, the wriggling of lambs' tails as they take their morning suck. But the movements of men themselves and their astonishing abundance are forgotten by reason of their familiarity and it is only the athlete's prowess that remains a pleasure to his fellows. A crowd of adult males, in sombre bowler hats, rotund dark figures with spread umbrellas trotting gently down an incline to the railway station, excites no thrill of wonder. Yet, if a spirit of change came among them, if, like the earth-bound chrysalis that sheds its wrappings and emerges a perfect butterfly, these sombre humans were metamorphosed into a herd of reindeer with tall branching antlers and glossy flanks, trotting down the hillside to cross a mountain brook, men's hearts would leap with startled pleasure, and they would follow every movement of the herd with admiration. . . .

This feeling of natural wonder . . . is one of the great attractions of polar lands, and the seas that surround them, for on many of those shores the original abundance of life still exists. In those colder climes the effect is magnified, for besides the contrast with adjacent barrenness, it seems to be the rule that where species are few the numbers shall be great. As a sim-

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THE RAGE WHERE IT'S COLD

Vigor Leaps and Roars Incessantly Across the Polar Ice

ple example, take one from the insect world. On the down-wind shore of Arctic lakes is sometimes found in great quantities a peculiar grey-brown sludge that could be shovelled into barrels. This sludge is a collection of the floating skins of countless hordes of tiny gnats, shed as they emerged from the water for their brief aerial existence.

There are fewer beasts in polar lands than once there were. Besides others, the Greenland Right Whale and the Southern Fur Seal have been virtually exterminated, though happily there is now some indication of a gradual rebuilding of populations in a few remote areas. Others are now rare where once they were multitudinous, because man in his search for wealth has slaughtered them. Almost all the sub-Antarctic islands had once their monster herds of Elephant Seals, and the walrus of the north lay in contented thousands on the beaches. Today, the Atlantic Walrus in large numbers is only to be found around Zemlya Frantsa-Iosifa and north of Baffin Bay. . . . For the most part the great herds were slaughtered for their tusks alone, the carcasses lying to rot in the mossy valleys. . . .

Despite such ruthless slaughter great numbers of the larger animals do still survive in polar lands, and still in places can one come to feel the great wonder of the multitude of life. But the polar regions are lands of extreme contrast: in one place there is a teeming plenteousness, seals, penguins, or caribou, while a few miles distant the land will be empty, no living thing breaking in upon its silent stillness. It is the local concentrations of animals that are the wonder, for these cold lands, treated as a whole, possess but very little life. Indeed, except at the sea's edge, the whole great southern continent maintains no living thing save only a few small mosses and lichens, and some tiny mites that live among them. Apart from the Caribou or Reindeer and the Musk Ox that wander in the lands that border the north polar ocean, all the larger polar animals are dependent on the sea. . . .

The mainstay of all coastal polar life is that group of mammals known as seals, of which there are many, though different species, both Arctic and Antarctic. . . . Most species are gregarious, at least in the breeding season. . . . It is a splendid thing to see a rookery, whether on the winter ice or upon some spreading beach. The stout matron seals in groups and coteries lie upon their sides, each one's new-born pup beside her, staring with round pathetic eyes at the surrounding polar ice. Or it may be a great gathering on some open beach of a species where the bulls, not content with a single female, keep a harem as large as their fighting skill can manage. It is so with the Elephant Seals of the sub-Antarctic islands, which in some places breed in countless thousands. The cows, their season come, leave the sea to pup, and the bulls, some even twenty feet in length, herd them into groups and keep them there. The pups are born, and in a few days' time the adults mate again. . . . From dawn till dark the enormous bulls bluster and roar, distending their leathery noses in their fury, rearing up their bulk to the attack. They take no heed of cows and pups, but charge over them, bellowing at a rival until, once more conquerors, they turn but to fight again. These great bulls, each with harem containing even thirty cows, are but one tiny fraction of the whole enormous gathering on the beach, and this beach is a single one of the dozens that surround the island. Most wonderful of all, these prodigious bulls, these great masses of raging bone and muscle, remain active upon the beaches a full six weeks on end, and not once do they leave their cows, not once do they return to the sea, not once in all those weeks do they take a particle of food.

That is South Georgia, and likewise in essentials is the great herd of breeding Fur seals at the Pribilof Islands in Bering Sea. There, it is said, may be seen at one moment more large mammals than is visible together at any other point on Earth, and to have seen is certainly to believe. . . .

Whales swim near all polar coasts. . . . All kinds of birds breed in colonies round polar shores in prodigious numbers; geese, ducks, auks, and gulls in the north; penguins, petrels, and gulls in the south. There are places where birds sit nesting, close-packed side by side, the whole great concourse covering many acres. The noise is tremendous, as of a huge human crowd shouting in the distance, swelling and sinking, rising and falling, the shrill pipings of the young mingling with the deeper cries of the adults through the everlasting daylight of the polar summer. . . .

The species of truly polar mammals that go inland, and are not dependent on the sea, are very few. . . . The Reindeer in Arctic Eurasia has long been semi-domesticated, tribes being wholly dependent on it for food, transport, and clothing. In the Canadian Arctic archipelago, there is the Caribou. . . .

More limited in its distribution is that other essentially Arctic herbivore, the Musk Ox, the exciting beast of youthful tales, with hair so long upon its belly that by repute it rubs out its own footprints in the snow so that none can see where it has passed. . . . The Musk Ox lives a roaming life, seeking the scattered tufts of coarse, dry grass on which it feeds. . . . Though apparently so ponderous, in reality the Musk Ox is an animal of considerable agility, and over boulder strewn moraines, or high arctic pastures, can run much faster than a man. . . .

The Polar Bear is widespread along all Arctic coasts. . . . It wanders great distances over the ice of the polar sea and inland from the coasts, and even has been met far inland on the Greenland icecap. The adult is possessed of a greater ability to travel than almost any other animal. A very powerful, though slow, swimmer, it is undeterred by many miles of open sea. It can equally well cover, at surprising speed, great distances on land or over ice, and is possessed of an astonishing agility in clambering up the cliffs. It is a sight worth going very far to see to watch a large she-bear, followed by her twin cubs a half-year old, mounting step by step a steep and rocky headland. The mother leads, her young ones close behind. She stands erect and sniffs and paws the rock above, then finds an easier way and traverses a narrow ledge, where her very width one would suppose must be her downfall. But she crosses with apparent ease, then nimbly mounts the scree beyond, while the cubs, unhesitating, follow step by step.

—COLIN BERTRAM
in "Arctic and Antarctic"
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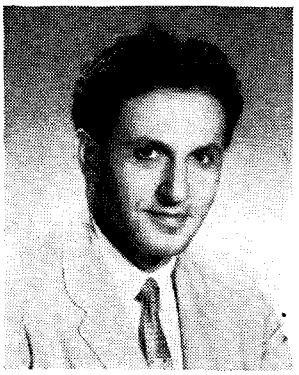
THE RESEARCH FRONTIER



—Rand.

WHERE IS SCIENCE TAKING US? *Ask a mathematician only if you're prepared to hear about strange places. In his world, the purest of the sciences, anything is possible as long as it doesn't contradict any of the other known facts about the region under discussion at the moment. Two and two do not always lead to four on its horizons. And new frontiers are perpetually in sight. Here a born-and-bred New Yorker who taught math at Princeton and then went west to Stanford, the University of California (Los Angeles) and the Rand Corporation, describes bizarre vistas of unknowns that have to be explored with unknowns. Dr. Richard Bellman will not be offended if what he writes below prompts reading of two of his forthcoming books: "Matrix Theory" and "Inequalities." His earlier publications include 200 research papers, two books, and five Rand monographs.*

By RICHARD BELLMAN
(The Rand Corporation)

A MATHEMATICIAN'S lot, although generally happy, has its occasional wretched moments. Some of particular intensity occur at social gatherings during attempts to answer the perennial query: "What does a mathematician do?"

Lately, new types of problems have popped up to brighten his replies. They represent simple versions of questions of pressing significance. As is often the case with problems of major importance, they can be stated in quite simple words. Most of the difficulty about them resides in translating the simple English words into mathematical language.

This new frontier of the endless universe of mathematics overlaps fields which have variously been labelled "feedback control," "cybernetics," "learning processes," "information theory," "sequential analysis," and "dynamic programming." We shall call them part of the theory of adaptive control processes. As an example, consider the following:

We are engaged in driving a jeep across the African plain, in pursuit of a lion. Our aim is to get close enough to lasso the lion. It is not the safest of sports, but it is considerably safer than driving on the Hollywood freeway. As the lion turns and engages in various evasive maneuvers, we steer the jeep so as to point towards the lion at all times. This is the simplest type of *feedback control.*

Let us now complicate matters by supposing that the steering mechanism is not completely reliable. This gives us a control process with random effects. Knowing the idiosyncrasies of the jeep, we can employ some sophisticated mathematical techniques to determine optimal steering policies.

Let us further suppose that we are required to engage in lion-lassoing with a jeep we have never seen before, with a totally new type of steering mechanism. Suppose, moreover, that the lion seeks cover in tall grass where he disappears from view from time to time. His presence may be noted by means of motion of the grass, which, however, may be due to some other animal, or the wind.

The problem of steering has become doubly difficult. Not only must we keep track of the lion, but we must learn how to steer the jeep while doing so. Unless we learn quickly enough, the lion may escape completely.

Here are some other problems of this general nature, all of which are wholly or partially unresolved.

1. The Two-armed Bandit Problem

Suppose that we have two slot-machines with fixed, but unknown, payoffs. We try one, observe whether we win or lose, and then perhaps try the other and observe whether we win or lose, and so on. In a small number of trials, say 25, how do we test one and then the other so as to maximize the total return?

Although the problem seems frivolous, this is merely a mathematical transliteration, due to E. F. Beckenbach, of a problem originally posed by W. R. Thompson in connection with the testing of new "wonder drugs."

2. The Black Box Problem

We have a "black box," whose insides are only imperfectly known. What stimuli shall we exert upon the box and what reactions shall we look for in order to determine the constitution of the box as quickly as possible?

This problem, considered by L. Zadeh in connection with electrical engineering, is readily recognized as the fundamental problem of medical diagnosis. Any application of modern computers to improve the accuracy and rapidity of diagnosis by physicians must reckon with this type of question.

3. The Counterfeit Coin Problem

Suppose that we are given 100 coins, identical in appearance and constitution, except for one which is counterfeit. The counterfeit coin is heavier than the others. To detect this coin, we have an equal arm balance. The problem of determining the weighing procedure which locates the counterfeit coin in a minimum number of weighings is fairly well known and has a number of simple and elegant solutions.

If we change the problem by introducing several counterfeit coins, the detection problem is exceedingly difficult, and no solution exists at the present time. The problem we have stated is a very simple version of the important experimental problem of using a set of different types of sensing devices to isolate an object with specified properties in an optimal fashion.

4. Lost in the Woods

Suppose that we parachute into a large forest whose general shape and dimensions we know precisely. If, however, we do not know where we are in the forest, and can locate no point exactly until we reach the boundary, how do we get out of the forest as quickly as possible?

Many other problems of this nature could be cited. It suffices to say that the treatment and even partial solution of many fundamental problems in the fields of statistics, communication theory, economic theory, engineering and biological control, automata, computers, and many others depend upon an understanding and solution of questions of this type.

Considering the basic role that these problems play in the theory and design of experiments, and indeed in the construction and interpretation of scientific theories themselves, it is amazing that it has taken so long a time for their existence to be recognized.

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KINGSLEY DOUBLE-CROSTIC NO. 1293

Reg. U.S. Patent Office

By Doris Nash Wortman

DEFINITIONS	WORDS
A. *Spiny vegetation common in SW U.S. bearing pods valuable for fodder.*	114 54 167 145 12 107 59 129
B. Fly away; escape.	13 136 100 20 110 30 28
C. See Word D.	103 160 124 39 93
D. Followed by Word C, position of the life of the man who "can't be wrong" (Pope; 2 wds.).	1 185 50 68 142
E. Followed by Word H, slogan of Verdun, generally attributed to Pétain (2 wds.).	177 63 18 189 143 171 125 112 87
F. Precision.	22 108 158 34 14 115 132 10
G. Impart gradually; pour in drop by drop.	66 117 41 52 109 138
H. See Word E (2 wds.).	169 43 118 149 130 77 134
I. Followed by Word S, familiar title of Stravinsky ballet composed, 1913, for the Diaghileff Ballet Russe (2 wds.).	65 40 159 172 31 79
J. One College whose managers are not worried about overcrowding.	15 82 74 183 42 33 90 3 111
K. What one must make to fulfill a game contract at diamonds (2 wds.).	101 120 47 173 51 154 29
L. Clothed with foliage.	139 179 86 155 113
M. The "Springs" scene of last important Revolutionary conflict in S. Carolina.	46 94 23 9 37
N. Urban character of a community.	26 73 181 32 53 83 78 16

DEFINITIONS	WORDS
O. Specifying the "tube" for taking a sample of liquid at any depth below the surface.	186 27 69 150 88
P. Plot to effect some purpose by secret artifice.	168 38 131 44 57 71 187 96
Q. Any Muse (3 wds.).	56 153 144 81 61 157 116 49 184
R. Nymph protecting a lake, river, spring, in ancient mythology.	121 102 174 140 151
S. See Word I.	67 72 95 122 162 175
T. What Othello said of murder, when Cassio was *not* killed (3 wds.).	36 146 135 11 106 170 89 164 64
U. British colony important in pending "United States of Africa."	98 7 127 48 188 147 119
V. Site of Amer. Gorgas Hospital, Canal Zone.	166 84 62 161 2
W. Fungoid.	4 21 75 133 92 99
X. *Small oval vessel to fit the orbit of human eyes; piece with peephole on rear sight of a gun.*	17 45 178 80 156 148
Y. To put straight (somewhat old-fashioned).	128 163 141 176 126 5 70
Z. Indisposition to action.	105 180 76 6 24 85 97
Z¹. Actress who sang about diamonds being a girl's best friend.	8 182 152 123 91 137 58 165
Z². To bring with one to the material world (said of spirits, in spiritualism).	25 19 55 60 35 104

DIRECTIONS

To solve this puzzle you must guess twenty-odd WORDS, the definitions of which are given in the column headed DEFINITIONS. Alongside each definition, there is a row of dashes—one for each letter in the required word. When you have guessed a word, write it on the dashes, and also write each letter in the correspondingly numbered square of the puzzle diagram. . . . When the squares are all filled in, you will find that you have completed a quotation from some published work. If read up and down, the letters in the diagram have no meaning. . . . Black squares indicate ends of words; if there is no black square at the right side of the diagram, the word carries over to the next line . . . When all the WORDS are filled in, their initial letters spell the name of the author and the title of the piece from which the quotation has been taken. Of great help to the solver are this acrostic feature and the relative shapes of words in the diagram as they develop. Authority for spellings and definitions is Webster's New International Dictionary, Second Edition.

							1 D	2 V		3 J	4 W	5 Y	6 Z	7 U	8 Z¹	9 M
	10 F	11 T	12 A		13 B	14 F	15 J		16 N	17 X	18 E	19 Z	20 B	21 W		22 F
23 M	24 Z	25 Z²	26 N	27 O	28 B	29 K		30 B	31 I		32 N	33 J	34 F	35 Z²		36 T
37 M	38 P		39 C	40 I	41 G	42 J	43 H	44 P	45 X		46 M	47 K	48 U	49 Q		50 D
51 K		52 G	53 N	54 A		55 Z²	56 Q	57 P	58 Z¹	59 A		60 Z²	61 Q		62 V	63 E
64 T	65 I	66 G	67 S	68 D	69 O	70 Y	71 P		72 S	73 N	74 J	75 W	76 Z	77 H		78 N
79 I		80 X	81 Q	82 J	83 N	84 V	85 Z	86 L	87 E		88 O	89 T	90 J	91 Z¹	92 W	93 C
94 M	95 S	96 P		97 Z	98 U	99 W		100 B	101 K		102 R	103 C	104 Z²	105 Z	106 T	107 A
108 F	109 G	110 B	111 J	112 E	113 L		114 A	115 F	116 Q	117 G	118 H	119 U	120 K	121 R	122 S	123 Z¹
124 C		125 E	126 Y		127 U	128 Y	129 A	130 H	131 P		132 F	133 W	134 H	135 T		136 B
137 Z¹	138 G	139 L	140 R	141 Y	142 D	143 E		144 Q	145 A	146 T	147 U	148 X	149 H	150 O	151 R	
152 Z¹	153 Q	154 K		155 L	156 X	157 Q	158 F	159 I	160 C	161 V	162 S	163 Y	164 T	165 Z¹		166 V
167 A		168 P	169 H		170 T	171 E	172 I		173 K	174 R	175 S	176 Y	177 E	178 X	179 L	180 Z
181 N	182 Z¹		183 J	184 Q	185 D	186 O	187 P	188 U	189 E							

Solution of last week's Double-Crostic will be found on page 6 of this issue.

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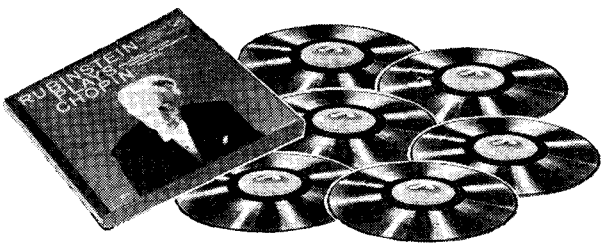

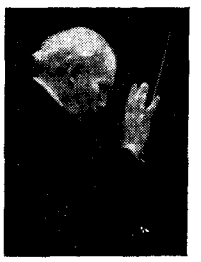

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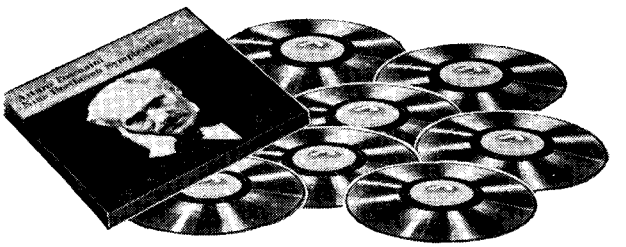

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